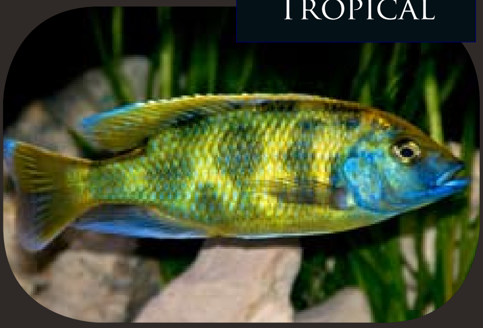
Redfish

FEBRUARY, 2012 (ISSUE #8)

Tropical damsels

TROPICAL

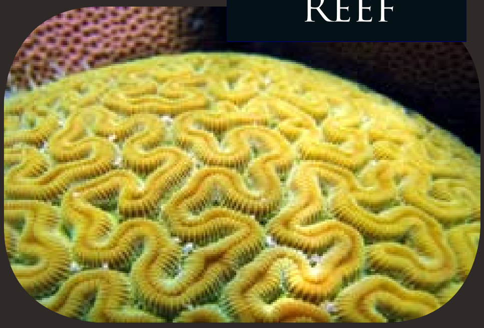


Mad about *Nimbochromis*

GOLDIES

The Humble Fantail

REEF



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AquaReef 400	400L	132 L x 52 D x 73/88 cm H
AquaReef 275	275L	70 L x 70 D x 77/79 cm H

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This month's Eye Candy Contents Page Photos courtesy:

(Top row. Left to Right)
'A-Koi-ing' by Michael Gil
'Turkoise 2007 068' by Alain Feulvarch
'Lake Malawi Cichlid' by crabchick
'More fish' by the_tahoe_guy
'Star fish' by the_tahoe_guy

(Bottom row. Left to Right)
'Juvenile Pseudotropheus zebra "cobalt"' by Lee Nachtigal
'Platax' by Alain Feulvarch
'Poisson lion' by Alain Feulvarch
'Jelly fish' by Lefteris Katsouromallis
'Brain Coral Platygyra' by arthurmlee1

About Redfish

Redfish is a free-to-read magazine
for fishkeeping enthusiasts.

At Redfish we believe in the free exchange of information to facilitate success by aquarium and pond hobbyists. Each month Redfish Magazine will bring you dedicated sections on tropical, coldwater, marine and ponds.

Redfish was founded in early 2011 by Jessica Drake, Nicole Sawyer, Julian Corlet and David Midgley.

We hope you enjoy this, the eighth issue of Redfish.

古池や蛙飛込む水の音
ふるいけやかわずとびこむみずのおと

Photo courtesy: (matt)

The Fine Print
Redfish Magazine

General Advice Warning

The advice contained in this publication is general in nature and has been prepared without understanding your personal situation, experience, setup, livestock and/or environmental conditions.

This general advice is not a substitute for, or equivalent of, advice from a professional aquarist, aquarium retailer or veterinarian.

Distribution

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Opinions & Views

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Aqua One Radiance Marine LED Reflector

The Aqua One Radiance Marine LED Light Unit, the most advanced LED marine lighting for the seasoned aquarist.

The Radiance Marine LED Light Unit replicates natural lighting creating a more realistic and ambient environment for your marine life and also aesthetically enhances the look of your aquarium.

Features & Benefits:

- Programmable Timer – There is no need for electronic timers on power outlets, as the Radiance controller allows the user to set the time, date and control the photoperiod directly.
- Moonlight Function – The moonlight intensity follows the actual lunar cycle using the time and date programmed into the controller.
- Manual Mode – The user can set the intensity of both the white and the blue LED's independently allowing the overall colour to be customised. Power to each colour can be set from 1-100% in 1% increments
- Incremental Dimming – 6 different time/intensity points can be selected allowing a customised sunrise/ sunset.
- Energy Saving – Due to the dimming function, less power is used than a non-dimming light unit with comparable power consumption.
- Low Heat Output – Unlike metal halide and fluorescent light units, heat is transferred upwards from the unit instead of downwards towards the aquarium. Fans built into the unit keep the unit cool to touch and increases the efficiency of the units.
- No UV or IR Light – Increased efficiency by converting power to visible wavelengths that are useful for coral growth and eliminates heat input to the aquarium created by infrared light found in metal halide and fluorescent lighting.

Aqua One products are widely available at most quality pet retailers.
To find your nearest retailer, visit www.aquaone.com.au

Aqua One Nautillus Canister Filters

- Quiet, energy efficient and powerful, the Nautilus range of Canister Filters feature easy to use technology with a Quick Release Tap System to ensure fast, easy and mess free maintenance!
- Priming the filter is simple - all models (excluding the Nautilus 2700UVC) include a built-in primer, which primes the filter at the push of a button! The Nautilus 2700UVC also includes an ultra violet steriliser to ensure the elimination of free floating algae and harmful micro-organisms.
- The modular design of the Nautilus Canister Filters allows for additional filtration media to be added so that you can customise the filter to suit your requirements. It also features a sophisticated biological and mechanical filtration system, with a selection of wool, sponges, bio balls and filter media provided to ensure a perfect set up straight away!
- Nautilus Canister Filters are suitable for cold water, tropical & marine setups.

Aqua One products are widely available at most quality pet retailers.
To find your nearest retailer, visit www.aquaone.com.au

AquaTop's Clear Magic Powder

AquaTop's Clear Magic Powder will purify your aquarium water right before your eyes! Clear Magic Powder is safe for Freshwater and Saltwater Aquariums and can be added after routine cleaning. Once added to your aquarium, Clear Magic Powder forces organics in the aquarium to clump into larger molecules allowing for easier pick-up by your aquarium filter. Clear Magic Powder will also help keep the glass or acrylic walls of your aquarium algae-free in between cleanings.

One packet is good for 30 gallons (115 litres) worth of aquarium water. (For 15 gallon aquariums (60 litres), use 1/2 a packet of Clear Magic Powder.) When using Clear Magic Powder, AquaTop recommends the use of an AquaTop Power Filter or an AquaTop Canister Filter for maximum water clarity.

For more information, go to www.aquatop.com

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Ocean Nature Sea Salt

Aquasonic's Ocean Nature Sea Salt is an Australian made product, produced in Australia for over 35 years. It is made from the purest chemical ingredients & consists of a complete spectrum of trace elements as found in Natural Sea Water. It also provides a stable pH level upon mixing & each batch is scientifically tested.

It is widely used by universities, hobbyists, live seafood holding systems, aquariums and quarantine holding facilities. Ocean Nature dissolves quickly & is ready for use within minutes of mixing. The dehydrated salt provides excellent value to the user, allowing for immediate use.

Dose Rate: 4kg per 120L @ 24C = 1.022 Specific Gravity. Ocean Nature is a proven formula that will produce synthetic sea water capable of culturing the most delicate marine fish and invertebrates.

Sizes available in 2kg, 4kg, 10kg and 20kg.

Protech

Aquasonic's Protech is an Australian made product, which is a vitamin enriched slimecoat protection used as a treatment for fish during transport. It is also used when fish are being handled during transfer and water changes to assist fish recovery from stress, fight off disease and recommence feeding.

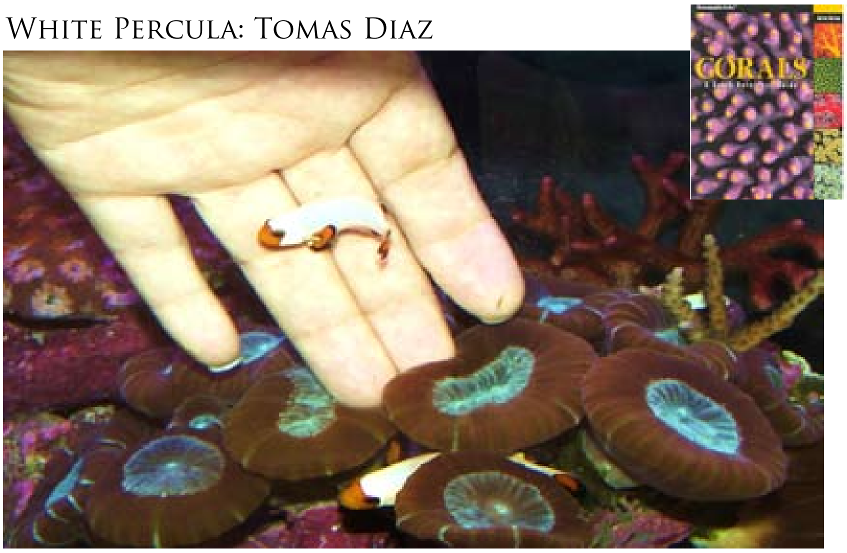
Protech provides slime coat and vitamin supplements B1, B2, B6, B12, E, and A which is a powerful vitamin mixture and will enhance fish health and quality prior to sale. Dose Rate: 1mL per 20 litres for general use.

REDFISH MAGAZINE PHOTOCONTEST2012

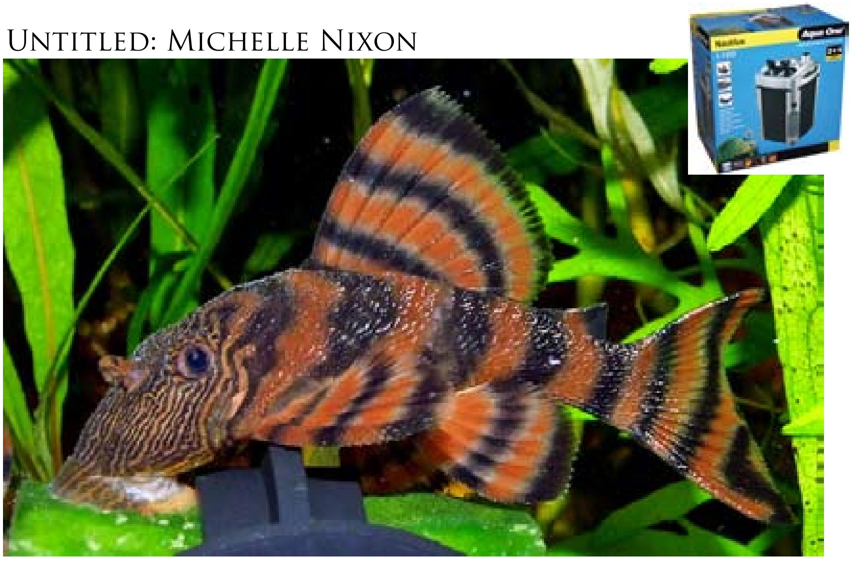
REDFISH MAGAZINE PHOTO CONTEST. OCT 2011 - JAN 2012

Redfish Magazine is pleased to announce the winning entries in its second photo competition. Thanks to AquaOne for supplying the filter as a prize!

WHITE PERCULA: TOMAS DIAZ



UNTITLED: MICHELLE NIXON



NEED INSPIRATION?

Here are some amazing aquatic images from flickr!

"Diver Silhouette" by Tim Sheerman-Chase

"Untitled" by Philippe AMIOT

"ray" by Jim Fischer

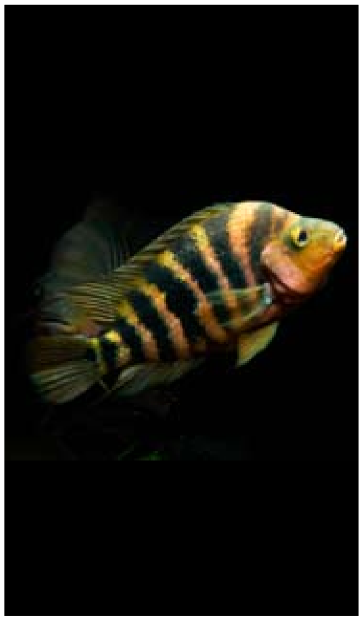
"The Dolphin Gives Girl a Rose - With Love ;)" by Hamed Saber

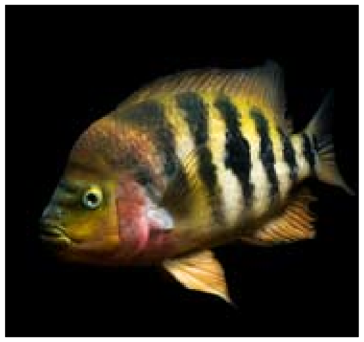
Today In The Fishroom

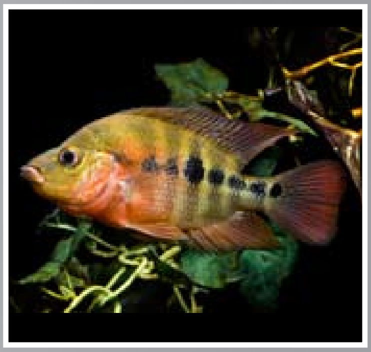
with Mo Devlin

Hogaboomorum.
Unusual name.
Beautiful fish.

a relative of the red devils and midas cichlids, the hogaboomorum is a strikingly patterned and coloured central american cichlid.







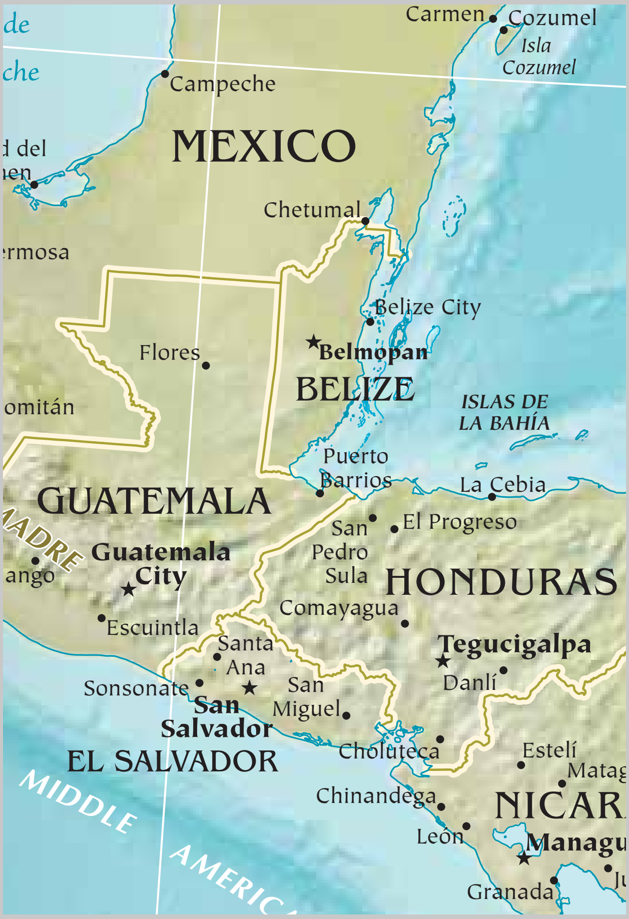
Text and photos by Mo Devlin

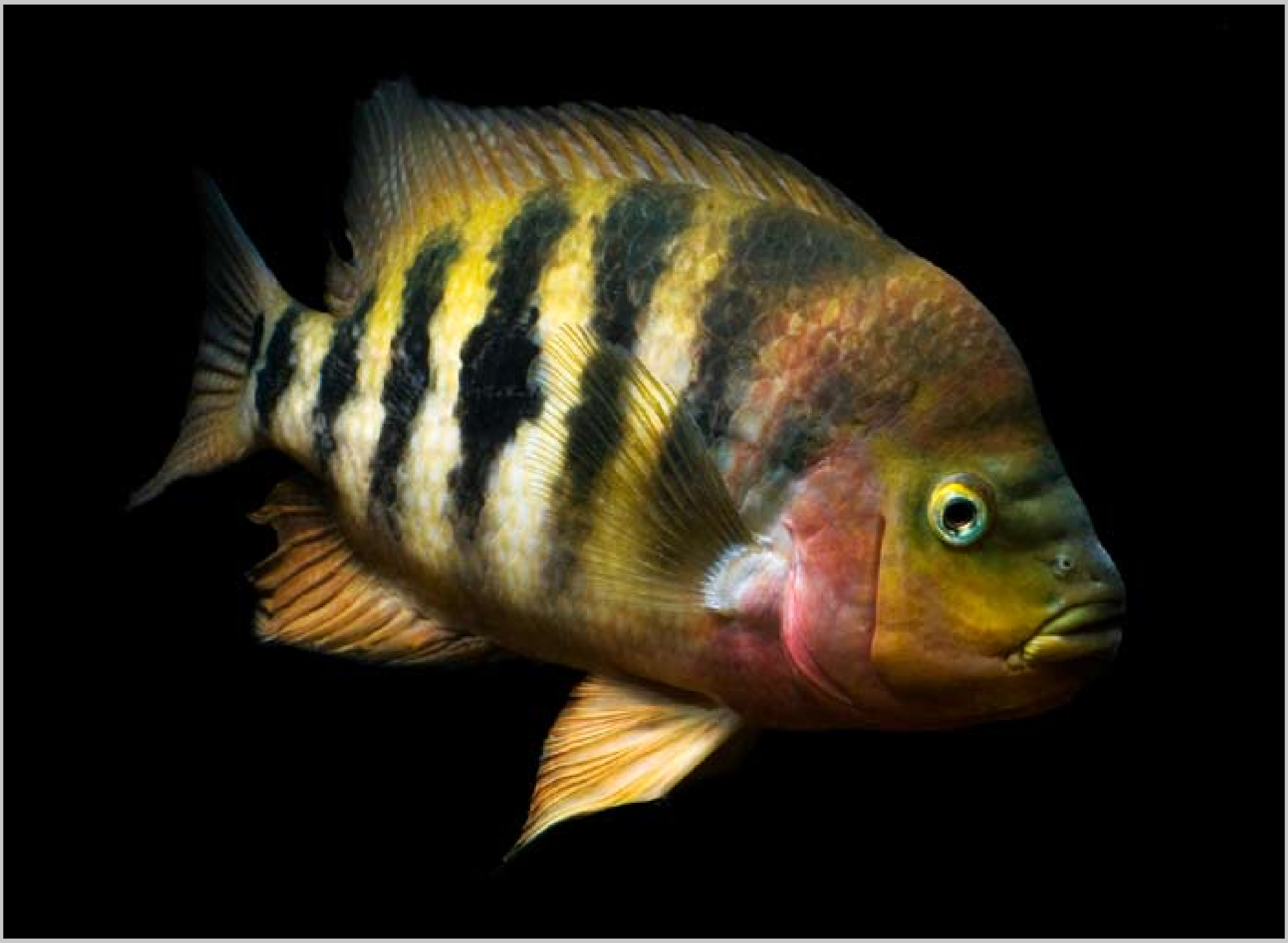
I've been fortunate enough to have gone on several fish collecting trips with some very good friends. The experience of actually seeing the fish in their own environment really helps me appreciate the fish when I get them back into my tank at home. One of my fondest memories was a trip to Honduras.

Generally we plan a trip around collecting a few select species of fish. On my short list this time around was a member of the Amphilophus family with the very unusual name, Hogaboomorum, a fish not commonly found in the hobby. The fish is only found in the Rio Choluteca basin on the Pacific slope in southern Honduras, near the Nicaraguan border.

This species of fish was named after two brothers, George and Peter Hogaboom. Apparently they were on the trip that collected the fish that were used to describe the species.

The name, hogaboomorum is a plural noun, which, in the Latin genitive means "of the Hogabooms", and not an adjective. For this reason



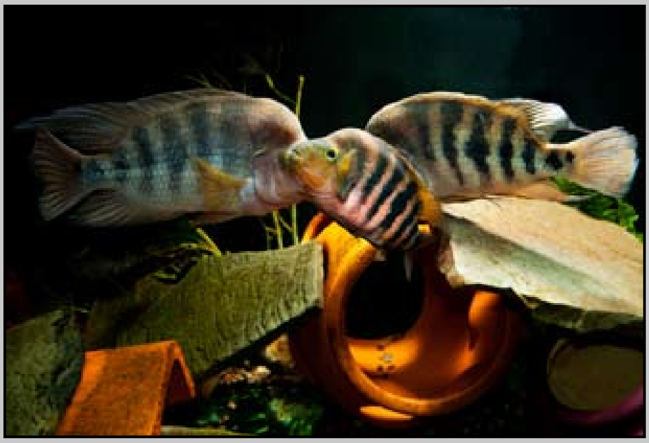


the name is as it is, and not referred to as "hogaboomorus" with Amphilophus.

The fish is closely related to *A. citrinellum* and shares most of the same characteristics. The difference is that the aggression level of the "Hogs" is not as ramped up as the Midas cichlid. I currently have one breeding pair and a spare male living in a 180 gallon tank along with a juvenile *Paratheraps synspilus*…a target fish whose sole purpose is to minimize aggression between the much larger Hogs.

The living arrangements in the tank are quite simple. One large male along with the target fish live on one half of the tank and the breeding pair residing on the other. Most often living arrangements like this among large cichlids end up with one or the other getting bruised or worse. For whatever reason, the trio and the other have lived in harmony for eight years.

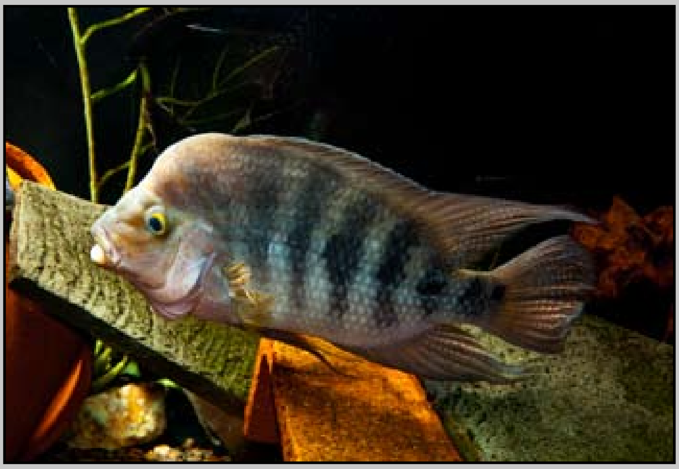
The fish breed regularly several times a year providing lots of fry for distribution into the hobby. Like most large cichlids the breeding behavior begins with the male and female displaying. Whenever they start the breeding process the male will begin with a "dueling match" with the male's squaring off and displaying.
It almost appears as if the female is looking on to watch the confrontation.



Despite the active displaying, ALL of the fish manage to keep those beautiful trailers on their fins. In fact one of the things we noted when we collected the fish was that they also maintained their trailer in the wild.

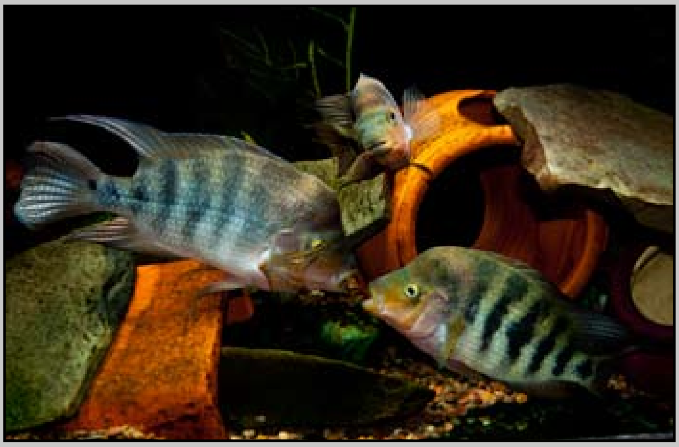
The male on the left (non-breeder) is about an inch bigger than the breeding male. I speculate that energy that would normally go toward growth, is diverted to breeding. This seems to be the case for all of the breeding cichlids I have kept.

Any time I have multiple fish of the same species, the breeders always remain smaller (centre right).



You can see from the picture WHO is actually gaining ground. Note the direction of the pelvic fins. He's swimming backward in retreat. I have a half dozen photos of this scene...each with the same. He would advance, then rapidly retreat (bottom right).

Once the male is satisfied that the competition is quiet, he will turn his attention to the female... chasing her around the breeding area, often t-boning her pushing her sideways. The female doesn't seem to avoid this attention.



The pair always breed in the pot on the far left bottom. Almost always she will play this "peek-a-boo" game with the male...with her head coming out of a much smaller area that the male can't access. You can see that he is interested (top, overleaf).

Eventually they will end up in the breeding area.

And as things go, within a couple weeks, the tank will be full of fry (see Page 13). For the most part I have distributed fry to fellow enthusiasts. Some I have kept in various tanks as dither fish. Oth-

ers I have separated and keep as grow outs.

This is a great fish for someone who is looking for a "wet pet". Hopefully we will see it more often in the hobby. If you have any specific questions about the species, you can e-mail me at aquamojo@modevlin.com or visit my Aquamojo facebook page: http://www.facebook.com/aquamojo for more photos.

ABOUT THE AUTHOR

Mo Devlin is the owner of Aquamojo.Com. He maintains three thousand gallons of fresh water tanks. Over his thirty years in the hobby he has successfully bred many of the Central and South American cichlid fishes.
His passion for New World cichlids is only rivaled by his love of photography. Over the years, he has posted images of his collection frequently in his "Today in the Fishroom" series on line across many national and international fish forums. Mo has spent two terms on the board of trustees for the American Cichlid Assn, was chairman of the organization in 2010, and has been the Publicity chairman for the past decade.

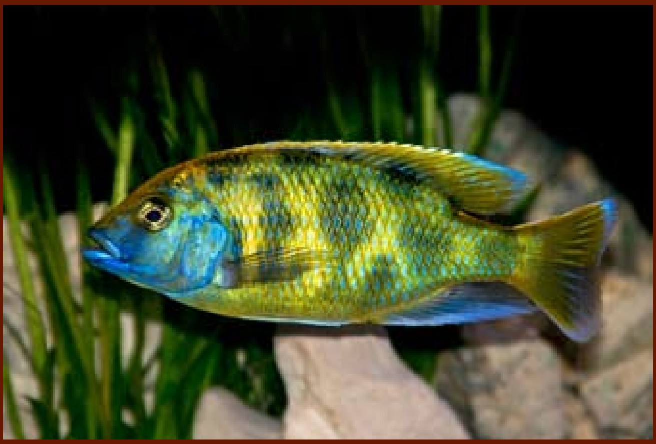
NIMBOCHROMIS

IT'S 'HAP'LESS TO RESIST

BIOLOGY & ECOLOGY

Standing on the shore of Lake Malawi looking out to the horizon you could be forgiven if you thought you stood at Lands end. It's a vast body of water that's host to two amazing lineages of cichlid fishes. The first includes a range of "pocket rockets" known in Africa and by hobbyists as 'mbuna'. These fishes include the iconic zebras, electric yellows and their allies. The second lineage is that of the 'Haps', a shortened form of the name "*Haplochromis*" the genus to which many of these fishes were once assigned. Long since revised to only contain a comparatively small number of cichlids, the name of the lineage lives on to describe the non-mbuna cichlids of Lake Malawi.

Amongst these Haps is a small group of striking patterned cichlids from the genus *Nimbochromis*. Very popular with African cichlid enthusiasts, these fishes feature bodies spotted or blotched with darker colours. Attractively, the females retain the blotches, while males take on bright colours (metallic blues, reds and

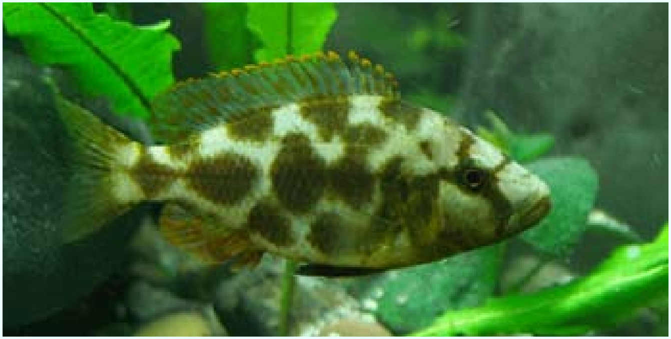

a male *Nimbochromis venustus* in an aquarium.

Lake Malawi is a vast body of water that from the shore looks like it could be as large as an ocean.

golds) on the onset of sexual maturity. All species are predators that prey on smaller fishes (both young haps and mbuna). The group is famous for the oft-reported habit of corpse mimcry, where the predator pretends to be dead to lure small fishes close enough to be consumed. There are seven species in the group: *N. fuscotaeniatus*, *N. linni*, *N. livingstonii*, *N. maculimanus*, *N. pardalis*, *N. polystigma* and *N. venustus*. All occupy a similar ecological niche in the Lake and grow to 6-10'' (15-25cm) in length.

AQUARIUM CARE AND KEEPING

Establishing a new aquarium to breed one species of *Nimobochromis* is relatively straightforward, though we note here that all species hybridise readily and should be keep separately from each other. The aquarium should be well cycled, a state that can be quickly achieved by using aged water and an already established biological filter. The latter can be as simple as seeding your new filter with 1/2 old filter material from a previously established aquarium. Good aquarium stores and hobbyists should be able to assist you in this, if you don't have an established aquarium of your own. The water should be hard and alkaline, whilst numerous specialist Lake Malawi pH buffers are available and work very well - an alkaline substrate (shell grit, crushed marble, coral sand, aragonite etc) or a bag of shells in the filter is sufficent. The pH should be stable above 7.5 and preferably around 8. It's worth noting at this point that high pH and tank cycling are not ideal companions (this is because ammonium is



a juvenile *Nimbochromis livingstonii* showing the typically blotched pattern common to juveniles and females.

AQUASONIC PRESENTS ITS NEW RANGE OF ECOXOTIC LED AQUARIUM LIGHTING

PANORAMA PRO LED MODULE

This module has a powerful increase in light output which adds incredible shimmer and intensifies colours and growth.

The entire module is thinner, sleeker, polished and refined. With up to a 40% increase in light output and available in 5 colour spectrums, it delivers an amazing amount of brightness without sacrificing energy efficiency.
Whether you're looking to retrofit your nano-aquarium, pump up the actinic for your corals, or add stunning shimmer effects, the Panorama Pro completely changes what you can do with LED lighting. Add a polished reflector, effectively doubling the amount of light focused into your tank.

No one knows modularity better than Ecoxotic. The new connectable design allows you to connect up to three Panorama Pro Modules to one transformer using our 3-way splitter. You can even hybridize our Panorama Pro Modules with our Stunner LED strips, providing plug-and-play flexibility no other LED system offers.

Each module features 12 powerful LED lights enhanced with a new polished internal reflector, so you get unbelievable light while running about 50% of the power of your existing lamp. The best part is – they produce virtually no heat.

Each Panorama LED Module comes with its own hardware, mounting bracket and 19 watt power supply. Simply select the quantity of modules you'd like to order.

STUNNER LED STRIPS

The One Minute Upgrade

It's never been faster or easier to add light, accent and shimmer to your tank – without all that other stuff like heat and noisy fans.

Put beautiful, shimmering light right where you want it with a simple, super-efficient, linkable LED fixture designed to easily retrofit into your existing set up.

Stunner LED strips provide the ultimate lighting solution from nano-aquariums to public aquarium exhibits. Select your favourite, or mix and match colours with a linkable design that allows you to run up to 5 Stunner Strips off one 24V power supply (sold separately).

Double your light output by snapping on a polished reflector - or use our extension cable and 4-way splitter to keep things tidy.

Power supply units are sold separately to provide maximum flexibility and value. Each Power Supply will run up to 5, linkable 6 watt Stunner Strips.

ecoxotic

TRUELUMEN FLEXIBLE LED STRIPS

Designed for reef and NANO aquarium lighting. Check out the True Lumen flexible LED strip specs below!

- 10" x .5"
- Power up to three strips with one 12VDC converter
- Available in 12,000k white, 453nm blue, or 1:1 12k and 453nm
- Easily mounted with included screws or adhesive, and...they're flexible!

A flexible LED lighting strip is a neat idea, especially for retrofitting existing all-in-one nano-reef aquariums.

TRUELUMEN
LED LIGHTING

LED STRIP 10"
TRUELUMEN
12,000K White & 453nm Blue Combo

CODE	NUMBER LEDS - COLOUR
8222	12 x 12000k white
8223	8 x 12000k white/ 4 x 445nm Royal Blue
8224	12 x 445nm Royal Blue
8226	8 x 445nm Royal Blue/ 4 x Magenta
8227	12 x RGB (use with 8221 control kit)
5019	Polished Reflector
MP-3494	Panorama Power supply single use
MP-3248	Panorama Power supply multi use up to 3 units
5021	Extension cable
5024	3 - Way splitter
8221	RGB Control kit for use with 8227 LED

CODE	NUMBER LEDS - COLOUR
8010	24 x 453nm Actinic Blue
8012	24 x 8000k white
8011	18 x 8000k white/ 6 x 453nm Actinic Blue
8013	24 x 403nm Ultraviolet
8018	16 x 453nm Actinic Blue/ 8 x Magenta
5020	Reflector Stunner LED strips
5021	Extension cable 36"
MP3494	24V regulated power supply

CODE	DESCRIPTION
1660	LED strip 12 volt 453nm blue
1662	LED strip 12 volt 12000k white
1661	LED strip 12 volt 12000k/453nm blue
1664	Luner light 1Watt 453nm Blue
1666	Luner light 1Watt 12000k white
MP-3444	12V DC power supply 1Amp
5024	3 way splitter

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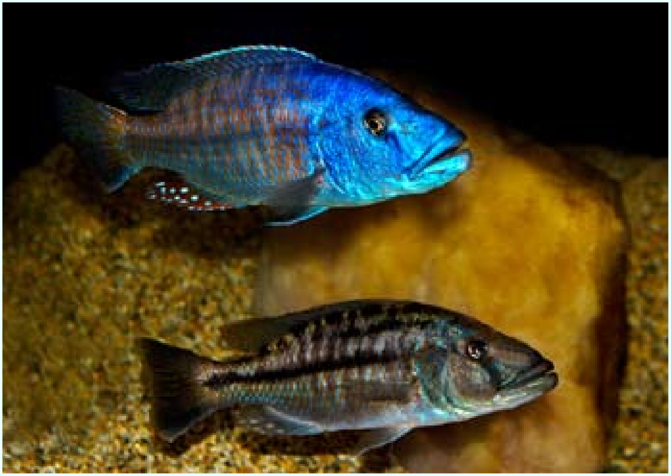
male *N. fuscotaeniatus* are strikingly coloured fish.

converted to ammonia at high pH). Care must therefore be taken to ensure that ammonia (and nitrite, though for different reasons) are 0 before adding any new stock. Once the water is ready you should set about aquascaping your aquarium. Plants tend to do poorly in the alkaline water, though Java Fern will survive and is resistant to the odd nip from the fish as well. Most African Cichlid enthusiasts tend to decorate the aquarium with piled stones, creating caves and crevices where harassed individuals can shelter from the attentions of the alpha male fish in the colony. I've had success aquascaping with granite and basalt stones, and even quartz can look effective. It's best to stick to a single rock type to give a natural look. An alternative some aquarists have tried is using coral skeletons, barnacle shells etc to create a kind of faux-marine look, sometimes even to the point of using actinic lights.

Regardless, once you've decorated the aquarium with plenty of hiding places you should set about obtaining a group of cichlids from a local store or hobbyist group. For a 4' tank (180 litre) I'd suggest you could keep around 8-10 *Nimbochromis*.



a juvenile *Nimbochromis livingstonii* showing the typically blotched pattern common to juveniles and females.

Nimbochromis polystigma blends into its surroundings in the wild.

It's possible to create a faux-marine look with African Cichlids, though this isnt to everyones taste.

Juveniles are immensely preferably to adults and should be easiler to obtain. Allow the individuals to grow together in the aquarium and be on the look out for signs of aggression and maturity. On maturity you'll probably want an average sized aquarium with 10 nimbochromines to have a maximum of 2 males. Excess males are popular with aquarists and can be readily traded in at retailers or sold to other hobbyists. Having a ratio of 4-5 females to every 1 male is definitely a good idea and should reduce aggression. For new cichlid keepers I'd also recommend that you have the means to isolate overly aggressive or injured fish.

As far as Haps go, *Nimbochromis* species are realtively docile, but the odd hyper-aggressive individual can cause signifcant harm in a relatively short time. The inclusion of some very fast swimming dither/target fish can also assist in moderating aggression. If room permits, T-bars and their similarly sized kin are good choices as they are fast swimming and can tolerate the odd nip without it adversely affecting their health.

Like all Haps, *Nimbochromis* species are mouthbrooding cichlids and carrying-females can be readily identified by their swollen mouths and their tendancy not to feed. This last point can cause females to lose weight and condition rapidly if they are allowed to carry successive batches of fry. A recovery aquarium, or ability to rest a female in the absence of males soon restores these fish to condition.

Like all Haps, the fry once they are emerge from the mothers mouth are large and straightforward to care for, readily accepting powdered flake or pelleted foods.

In conclusion, Nimbochromine cichlids make a great display. The patterning on females means that species-only tanks need not include a large number of grey fish. Like all cichlids, a little oversight is necessary to manage aggression by alpha males, however, these large haps tend to be relatively calm. If you've kept community fishes and want to try something different why not consider trying your hand at these striking cichlids.

photo by Khantipol

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Fantails

The Fantail Goldfish is one of the most popular and frequently kept aquarium pet the world over. They have a reputation for being hardy and undemanding to keep and as a result they're often chosen as a first fish for beginners. Whilst the Fantail should be a relatively long-lived fish (a 25 year lifespan for a well-kept specimen is not unusual), unfortunately many of these fish don't get to reach their true potential - beginners are often given poor advice or may have misconceptions about the best way to keep these fish. So here's a guide to keeping the hardy Fantail.

First of all, "goldfish bowls" are not suitable for goldfish! Most goldfish bowl kits don't even have a filter, which makes it very difficult to maintain reasonable water quality.

Aside from the filter issue, it's the size of the bowl that is a problem. Even the largest bowl is not big enough to house a single adult specimen of even the smallest variety of goldfish. Fantails get quite large (up to 20cm) and they grow quickly. Realistically, the aquarium to house adult fish should be suitably sized to cope with 15-20 cm fish. Obviously if you have more than one individual you'll need a larger system.

All aquarium fish need to live in a system where good water quality is maintained via a healthy, working filtration system and Fantails are no exception. Even though they are considered to be quite hardy, and can cope with some fluctuation in water quality better than many other fish can, they still require decent water quality to be maintained. Aside from a properly cycled aquarium filter, weekly water changes of 10-30% are necessary to remove nitrates from the aquarium. Goldfish have a big appetite, can be messy feeders and they produce a lot of

faeces. When doing water changes it's a good idea to siphon down near the gravel and in any corners, nooks and crannies to remove any waste that has accumulated in these areas.

Goldfish aren't fussy eaters and there are plenty of good quality, balanced flake or pellet goldfish foods available. They are quite greedy fish however and it's easy to overfeed them. It pays to be disciplined about not feeding them too much as the fish will be healthier for it and good water quality will be easier to maintain.

The idea that goldfish have a "three second memory" is a myth which derives from an old joke. As anyone who has kept goldfish knows, they have a good memory and soon learn to recognise their owner. They've been shown to be able to remember specific things for at least six months. For the patient goldfish owner, they can even be taught to do tricks such as "soccer" where the fish pushes a toy ball into a goal.

Goldfish are social and feel happier and less stressed if they are kept in small groups. A group of three to four fish is ideal but of course the aquarium they are kept in needs to be large enough to comfortably accommodate all of the fish. Having plants (be they plastic or live) and décor in the aquarium is also important as it gives the fish cover which makes them feel secure. Happy, relaxed fish will swim out in the main areas of the tank, knowing that they can always duck under cover if they need to.

Fantail goldfish are one of the hardiest forms of goldfish but they still require proper care in order for them to live to the ripe old age that they should. Fortunately, giving them the right environment is relatively easy and requires just some sensible planning before purchasing the fish and the correct equipment. With this, you can have a group of healthy, attractive fish which are more than just decorative, they will become interesting, interactive pets for years to come.

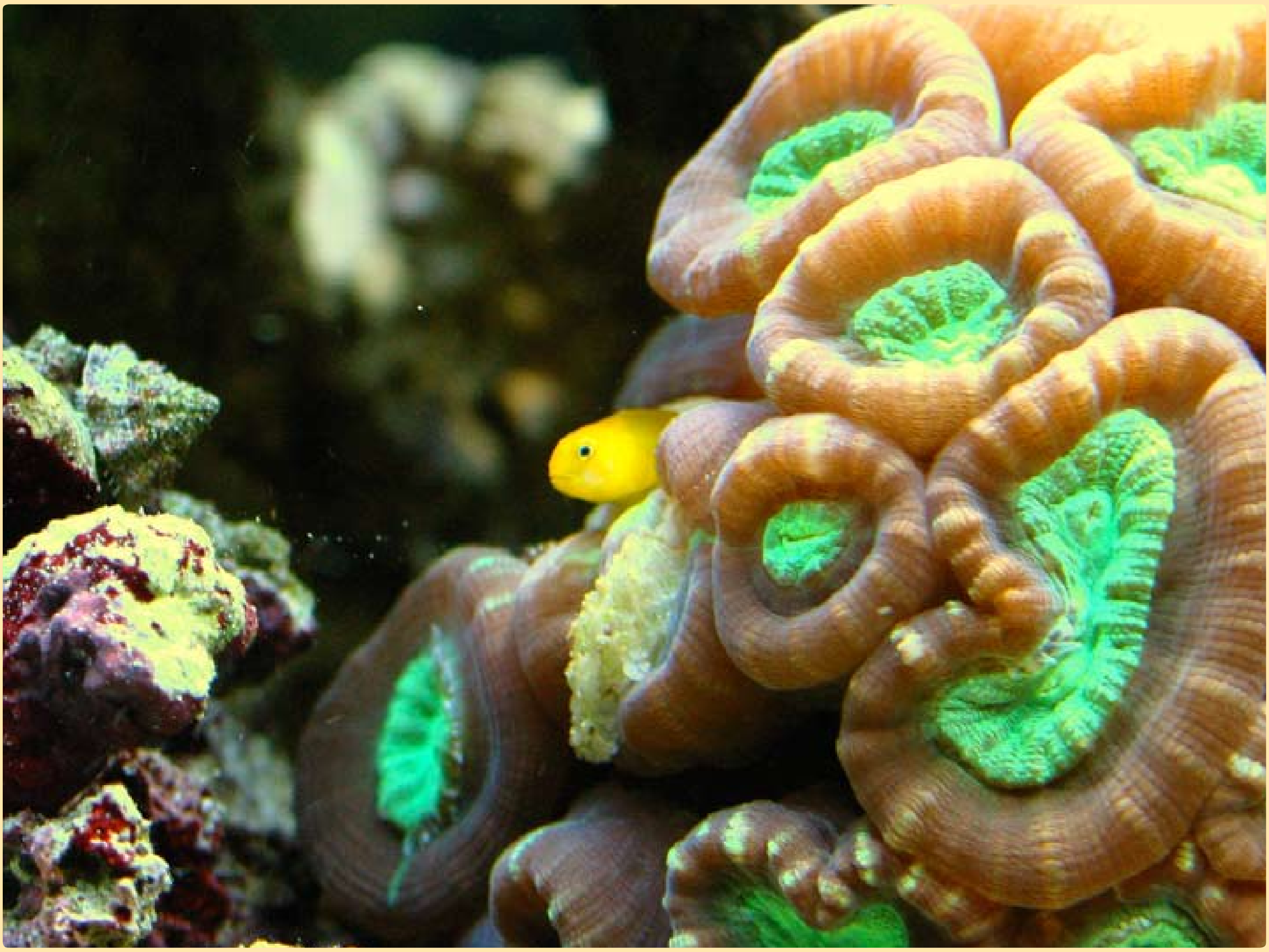
SARA ALLYN MAVINKURVE PRESENTS:

Many of my favorite corals come from the Faviidae family. Hardy, adaptable and fraggable, the family includes some of the most aquarium appropriate corals commonly available at your local aquarium store. Several genera in this family can grow relatively "fast" (for stony corals) in the right environment. Most can be kept under a wide range of light intensities. If there is any such thing as a "beginner" stony coral, it's likely to be found within the Faviidae family. This article will discuss several of the popular genera of the Faviidae family of corals.

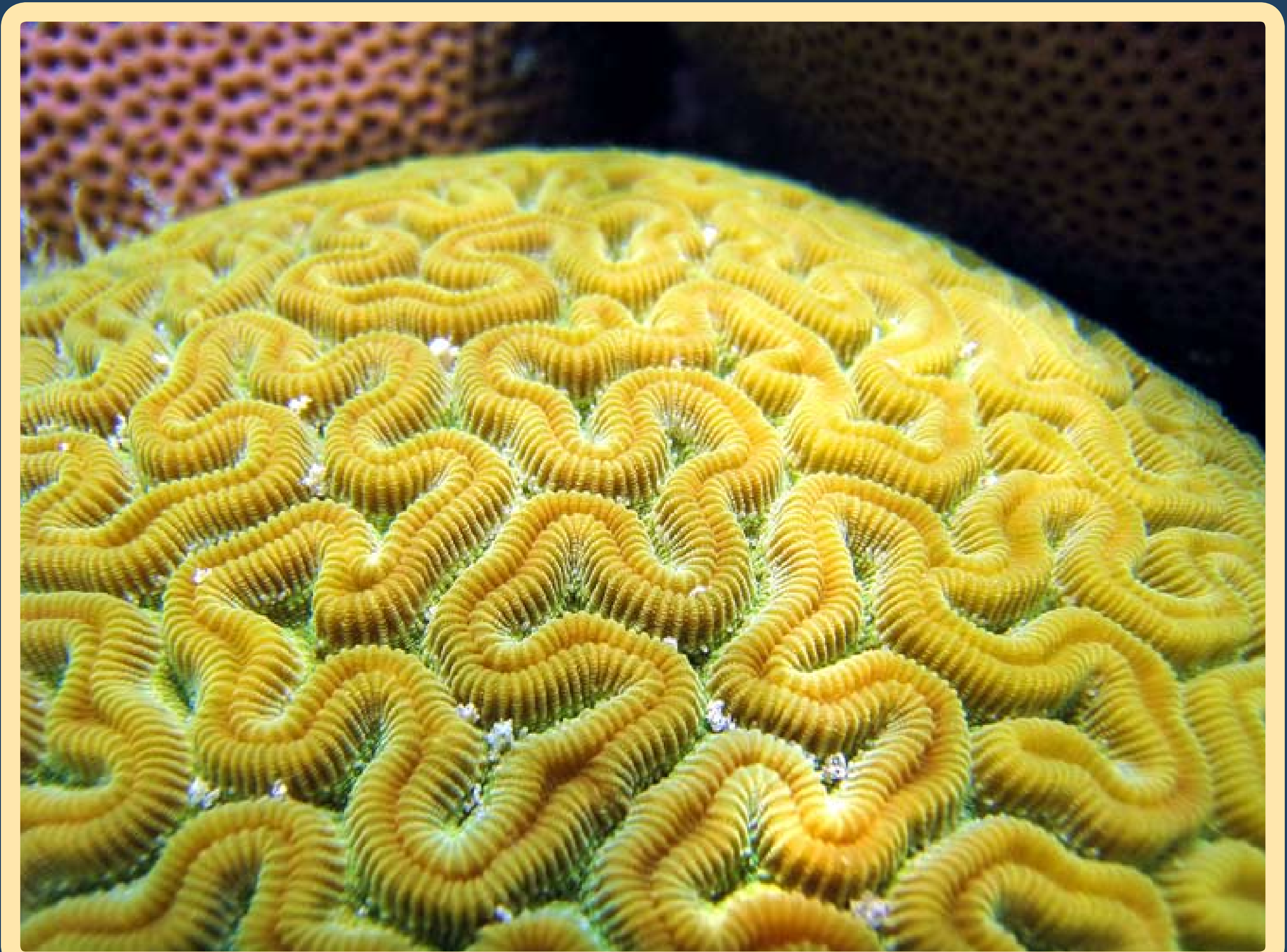
CAULASTREA ("TRUMPET CORAL")

Caulastrea spp. corals usually look like a cross between a moon coral and a torch coral. The polyps are usually, but not always, a tan or greenish color with bright green centers. They're easy to keep and easy to frag. While you don't necessarily need to feed them specifically (i.e. separately from your fish and other livestock), doing so will likely promote health and growth. It's also fun to watch. These corals have an impressive ability to capture prey (food). Ideally, they should be fed a variety of meaty sea foods (chopped fish, squid, krill, brine shrimp, etc.)

If the coral is new to your system, it might be "shy" at first. It might not put out feeding tentacles right away. You can encourage your coral to start "coming out" by target feeding the coral. While target feeding, turn off all water circulation so that the food can fall directly onto the coral. If you don't want to feed the whole system, use a turkey baster to squirt food locally over the coral. Within less than an hour, the coral should begin to "grab hold" of the food. After this starts, wait another 20 minutes or so and then turn the circulation back on. Doing this for a few days should result in the coral regularly extending its feeding tentacles in



A yellow clown goby hides amongst the polyps of this Caulastrea.



Maze corals come from a range of genera and are difficult to ID.

anticipation of feeding. If, when target feeding, your fish start picking the food off the coral, you can use a plastic strawberry basket (or some other similar contraption) to keep fish away while the coral feeds.

PLATYGYRA ("MAZE CORALS")

The group of corals we collectively call "Maze Corals" come from several different genera within the Faviidae family. They're called Maze Corals because, well, the pattern of the walls of their corallites form what looks like a maze. Corals with this kind of pattern could be *Platygyra* spp., *Favia* spp., *Goniastrea* spp., *Oulophyllia* spp., or something else. Without seeing the tissue-free exposed skeleton up close, it's unlikely you'd be able to nail down the specific genera for certain, much less the specific species.

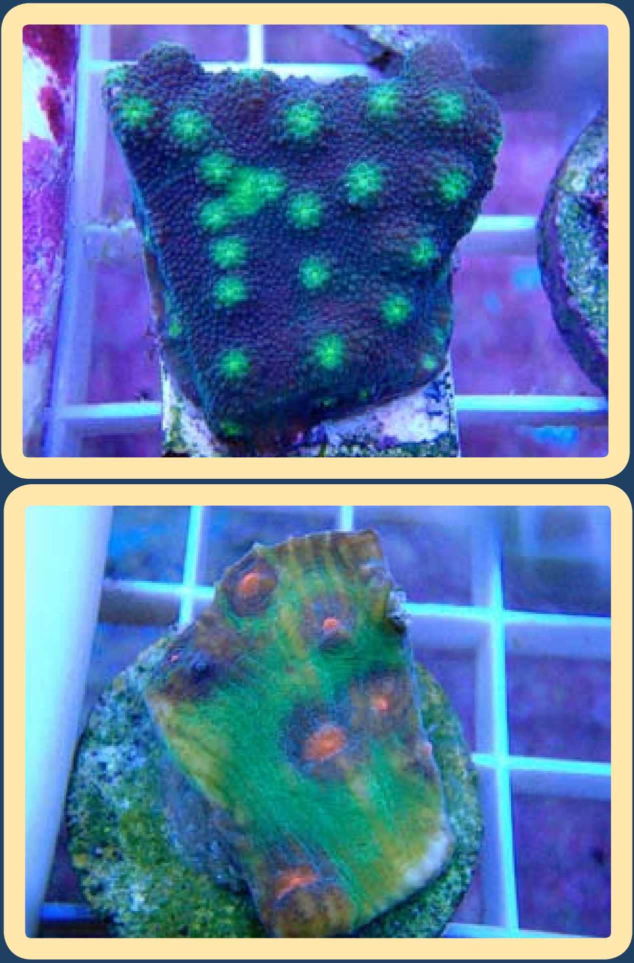
Some Maze Corals are hardy and easy to care for while others are far more difficult and sensitive. I wish I could tell you how to tell the two apart, but it's not always so easy. In general, I'd say that if the coral has survived several weeks (at least) in captivity at your local aquarium store without any signs of dying or bleaching tissue, I'd say it's likely one of the hardier varieties.

The *Favia* Maze Corals, in my experience, tend to be inexpensive for their size, relatively fast growing, and super fun to keep. The maze coral I keep in my own system (which I *think* is a *Favia* sp.) often puts out sweeper tentacles that are easily more than 6 inches (about 15 cm) long. Sweeper tentacles are not quite the same as feeder tentacles. They're longer and are thought to serve a different purpose. In most *Favia* spp. corals, the sweeper tentacles are significantly longer than the feeder tentacles and serve the purpose of stinging any neighboring corals which might be encroaching on the coral's space. As long as your aquarium isn't too overcrowded with corals you'd rather not get stung, sweeper tentacles can be fun to watch.

ECHINOPORA ("CHALICE CORAL")

Despite the fact that some reef aquarists have come to refer to both *Echinopora* spp. corals and *Echinophyllia* spp. corals as "echinos," they are in fact from entirely different families. *Echinophyllia* corals are in the Pectiniidae family while the *Echiniopora* corals are in the Faviidae family. Both are commonly available to reef aquarists. Whether or not one is more common than the other probably depends on where you are in the world and other factors determining mercurial availability.

"Chalice corals" are a loosely associated group of corals from several different genera (and even different families) which all share a few simi-



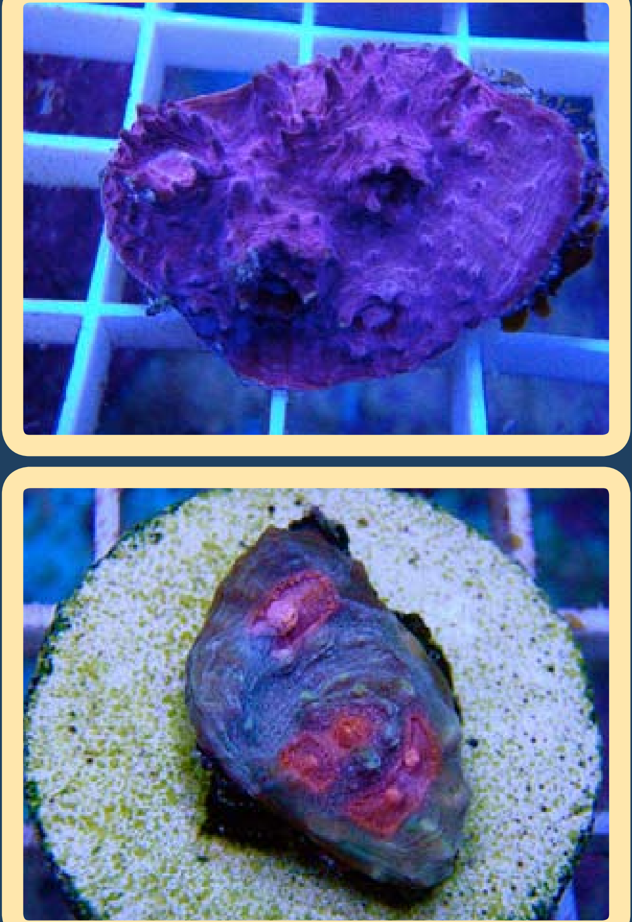
Frags of various Chalice Corals. Photo by MrCoral.com at flickr.

A sharknose goby (Elacatinus evelynae) perched on a boulder brain coral (Colpophyllia natans). Photo by Laszlo Ilyes.

lar superficial visual characteristics. I would describe them as looking like "lumpy" plating *Montipora* with loosely dispersed larger polyp mouths which look a little like "eyes." Someone else might describe them as a more fluid or plate-like moon coral with more colorful polyps that are more spread out and varying in size. Others might say they look like lumpy *Turninaria* without all the tentacles. However you want to describe them, they're all usually very colorful and interesting looking.

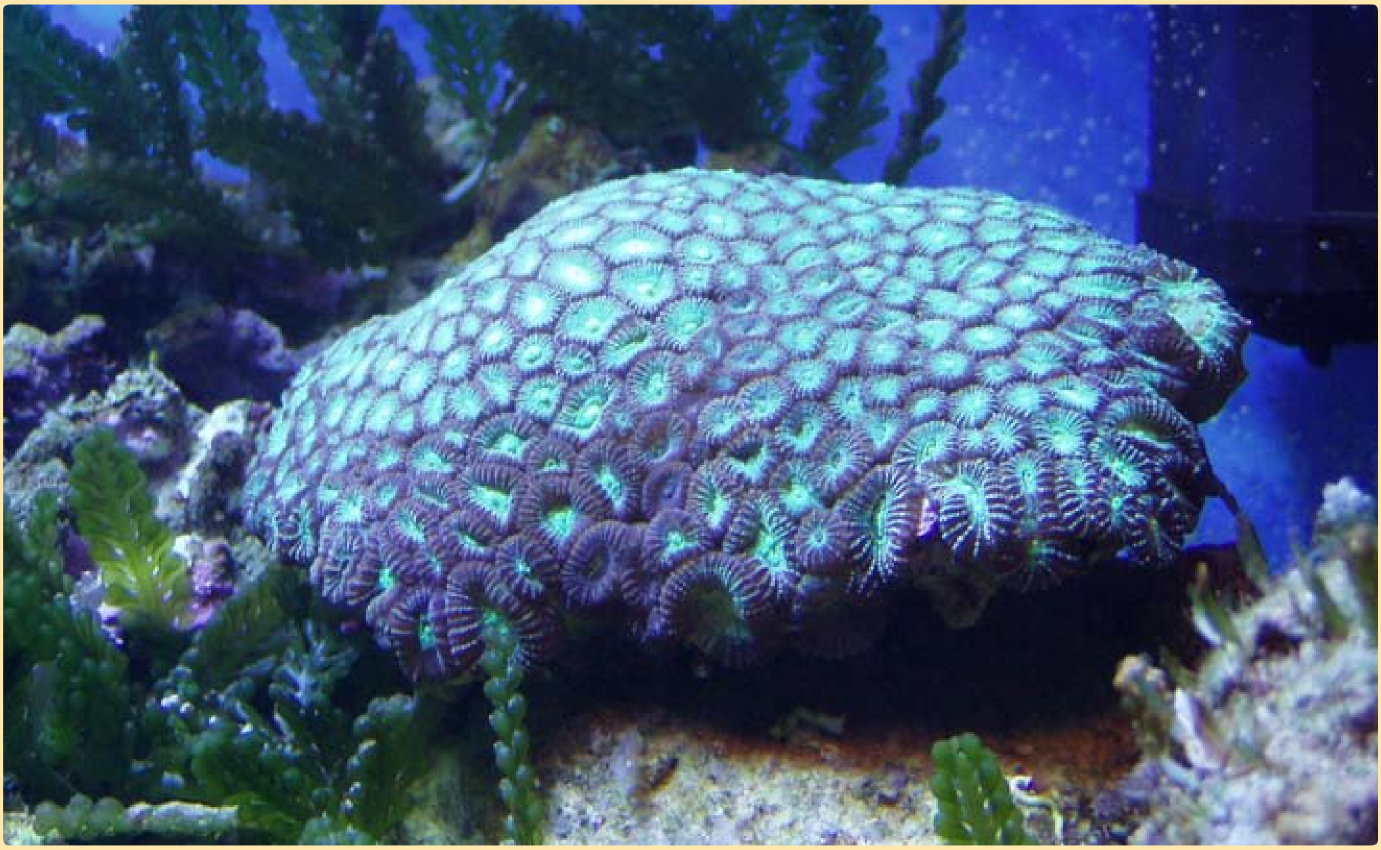
It's difficult to say much about chalice corals as a group since the only thing they really all have in common is their appearance. Since this article is about Faviidae, I'm going to restrict my characterization of "chalice corals" to those of the *Echinopora* spp.

Probably the most famous of the *Echinopora* corals is the *Echinopora lamellosa*. It's commonly found in reefs around the Indo Pacific and around the Great Barrier Reef of Australia. In the wild, according to Sea Life Base, they're found at depths ranging from 3m to 35m. That



Frags of various Chalice Corals.
Photo by MrCoral.com at flickr.

Brain corals can grow to significant sized colonies in the wild!



Favia growing in an aquarium with Caulerpa.

would lead this writer to believe that they're best kept under high-moderate to intense lighting. Like the trumpet corals, they benefit from target feeding with finely chopped/mashed meaty foods (likely the smaller the better). They are hermaphroditic broadcast spawners with external fertilization. Thus they might, at least theoretically, be able to reproduce in captivity.

I read on a blog in the US that, last year, ORA (based in the US), started selling an *Echinopora lamellosa* coral they called the "Sprung Stunner." Supposedly, it grows faster and looks prettier than other *Echinopora lamellosa*. However, I believe that how fast a coral grows is probably influenced as much by its environment as anything else. Of course, there may be some individual corals with a genetic predisposition for faster growth and/or brighter colors (just as there are human beings with genetic predispositions to grow taller and/or have bright red hair). None-the-less I wouldn't assume such claims when advertised by anyone attempting to sell you a coral with a celebrity name.

FAVIA AND FAVITES ("MOON" & "BRAIN CORAL")

Also known as "moon corals" and sometimes "brain corals," there are many species of *Favia* and *Favites*. They come in all different colors, but are usually around the same shape (round or globular).

Similar to the trumpet corals, these corals might be shy at first and it helps to target feed them until they start readily producing feeder tentacles. Typically, the feeder tentacles will come out at night (or shortly before lights out). However, many of them can be trained to put their feeder tentacles out during the day.

Because these corals can be found at a wide range of depths, most of them are considerably adaptable to a wide range of light intensities. Moderate to higher water flow is best to prevent damage from accumulating sediment and to encourage feeder tentacles. They are usually hardy and forgiving corals. They can be fragged with care using a wet saw or a Dremel. Slow tissue recession is usually a sign of starvation and/or poor water quality. Bleaching is usually the result of failure to acclimate to a change in lighting conditions.

Favia and *Favites* spp. are often misidentified as *Acanthastrea* spp. (and vice versa). Fortunately, the care requires for *Acanthastrea* spp. are mostly the same.

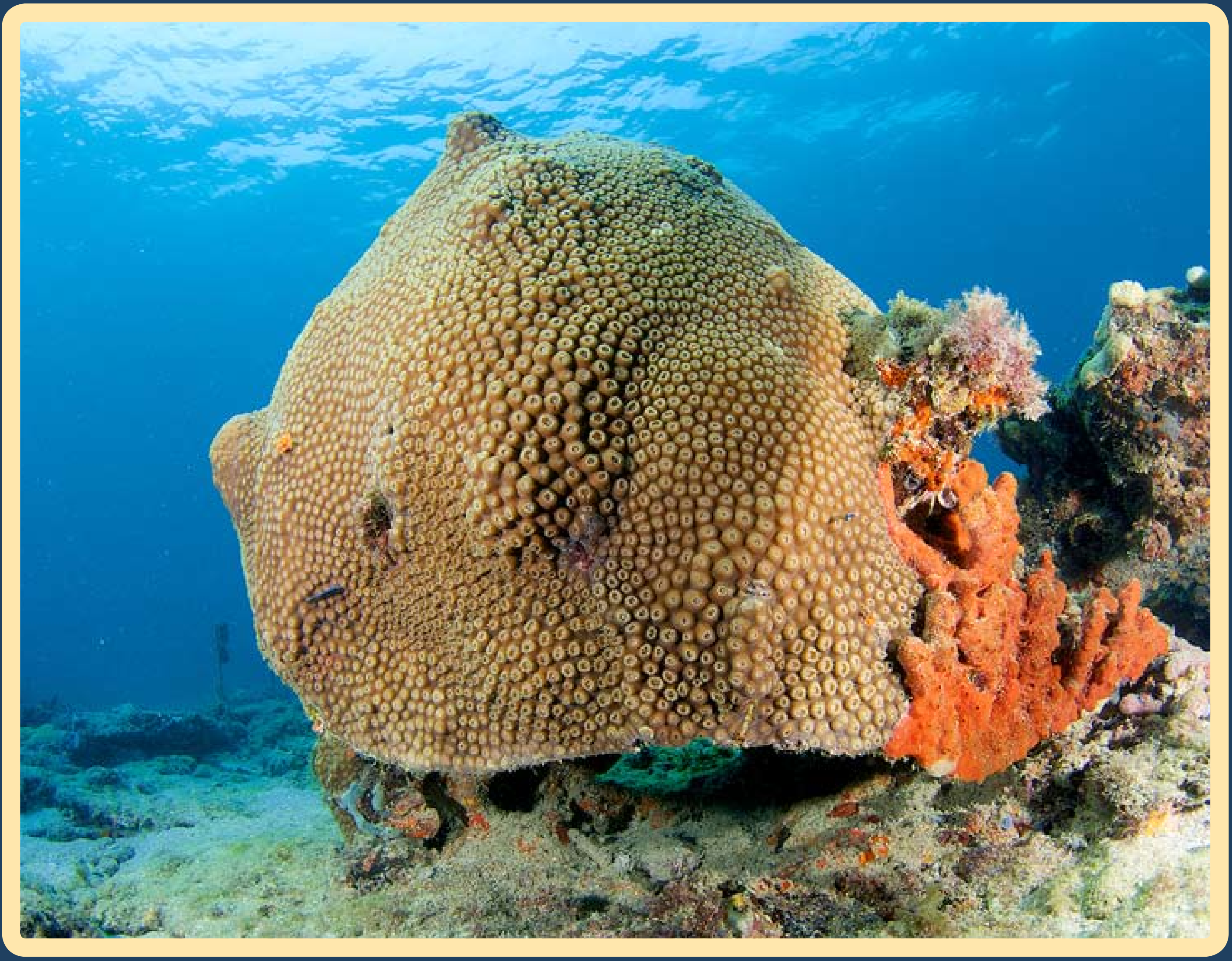
MONTASTREA ("STAR CORAL")

The *Montastrea* spp. corals are called "reef builders" because they found huge boulder-like colonies in the wild. Care requirements are more or less the same as for *Favia* and *Favities* spp.

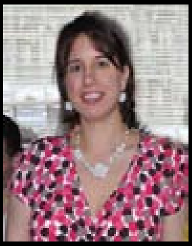
CLOSING REMARKS

If you want to start keeping stony corals but aren't sure what to start with, you should seriously consider a coral from the Faviidae family. They're hardy, fun, adaptable, dynamic and relatively low maintenance. They can also be inexpensive (depending on the variety).

So go have some fun with Faviidae!

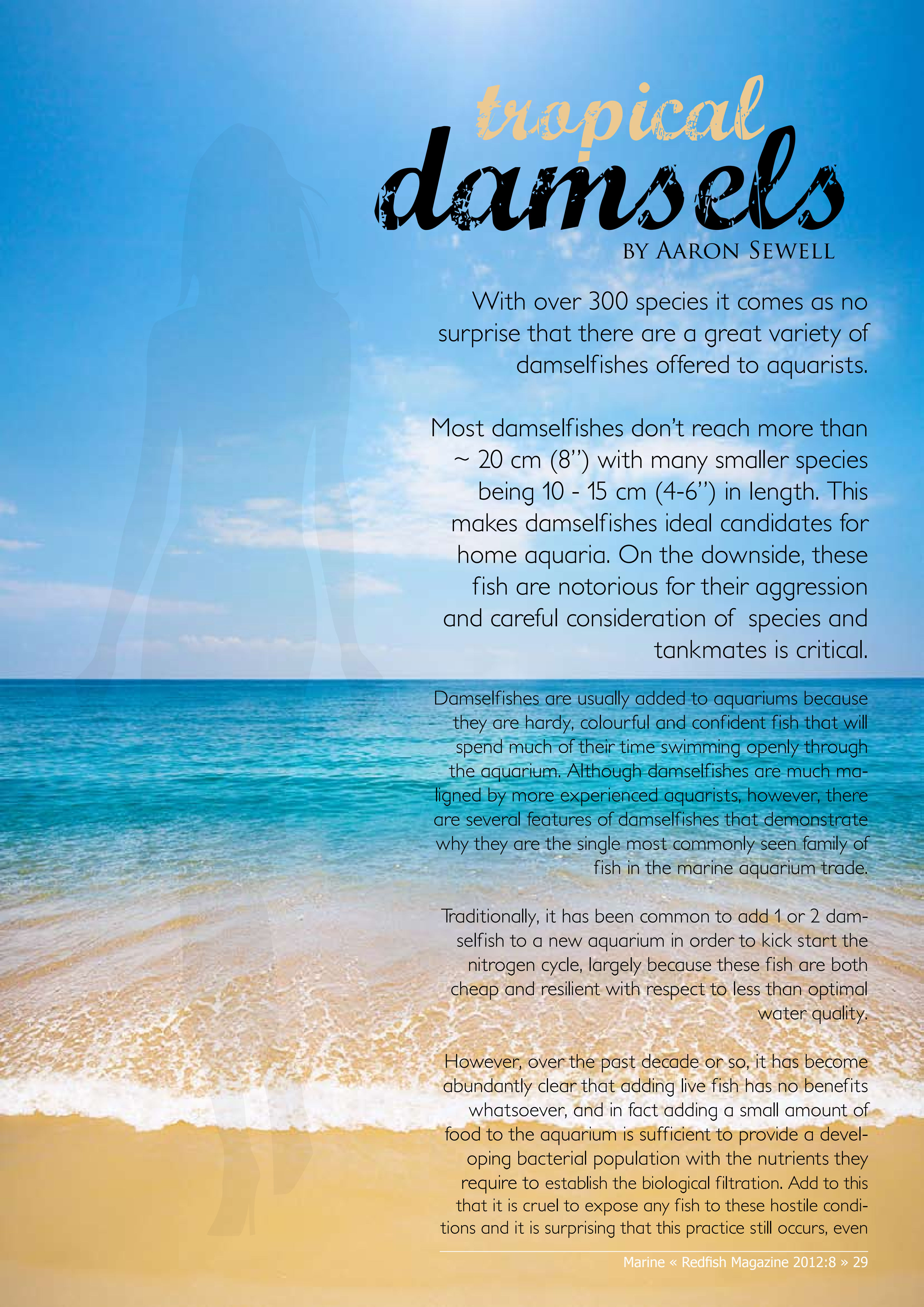


Montastrea are large architectural corals that are important reef-builders!



ABOUT THE AUTHOR

Sara Allyn Mavinkurve is a WetWebMedia crew member who has authored a range of articles on corals and marine aquariums for international and US fishkeeping magazines. She's a special guest at the Marine Aquariums of South Africa. When she's not writing about fish, Sara is an attorney who SCUBA dives in her ever-shrinking amounts of free-time.



tropical damsels

BY AARON SEWELL

With over 300 species it comes as no surprise that there are a great variety of damselfishes offered to aquarists.

Most damselfishes don't reach more than ~ 20 cm (8") with many smaller species being 10 - 15 cm (4-6") in length. This makes damselfishes ideal candidates for home aquaria. On the downside, these fish are notorious for their aggression and careful consideration of species and tankmates is critical.

Damselfishes are usually added to aquariums because they are hardy, colourful and confident fish that will spend much of their time swimming openly through the aquarium. Although damselfishes are much maligned by more experienced aquarists, however, there are several features of damselfishes that demonstrate why they are the single most commonly seen family of fish in the marine aquarium trade.

Traditionally, it has been common to add 1 or 2 damselfish to a new aquarium in order to kick start the nitrogen cycle, largely because these fish are both cheap and resilient with respect to less than optimal water quality.

However, over the past decade or so, it has become abundantly clear that adding live fish has no benefits whatsoever, and in fact adding a small amount of food to the aquarium is sufficient to provide a developing bacterial population with the nutrients they require to establish the biological filtration. Add to this that it is cruel to expose any fish to these hostile conditions and it is surprising that this practice still occurs, even more so that it is still recommended. The other drawback to this method is that due to the aggression levels of many damselfish, starting with one of these fish can limit the choices when it comes to stocking the aquarium with other small fish.

That said, the resilience of these fish make them an ideal choice for beginners. The fact these fish are so tolerant of less than ideal water quality coupled with the fact these fish are generally brightly coloured and very confident fish means that given the right choice of tankmates damselfishes are the perfect candidate for the less experienced aquarist.

On top of this, damselfishes seem to be some of the least fussy fish when it comes to feeding, they will accept almost all forms of food including flake and pellet foods without hesitation. Having said that, damselfishes are almost exclusively carnivorous, naturally feeding on zooplankton, so meaty foods, such as mysis shrimp or dried foods (flakes and pellets) that have a high meat content. If that is not enough, damselfish in general are amongst the least expensive of marine fish to buy. The price tag of marine fish is often enough to turn off many potential marine aquarists but with many species of damselfish in the range of $15 or even less, they are perfect for someone who is tentatively taking their first steps into the world of marine aquariums.

Damselfishes are egg layers – many aquarists will be familiar with the nurturing behaviour of anemonefishes – and are very protective of their eggs, often with care shared by both parents. This parental care, which is fairly unique amongst reef fishes, is extended even further with *Acanthochromis polyacanthus*, the Spiney Damselfish – a species rarely seen in the aquarium trade – where not only do the parents care for the eggs, they also care for the juveniles, making them the only members of the family to not have a pelagic larval stage. Such is the aggression shown by parental damselfishes, it is not uncommon to see eggs laid out in open view on the reef, most notably the Golden Damselfish, *Neoglyphidodon aureus*, which lays its eggs on gorgonians/sea whips. The benefit to laying eggs in such exposed areas is that the more substantial water flow assists in gas exchange, reducing the work of the parents, which allows them more time to keep watch and defend the eggs.

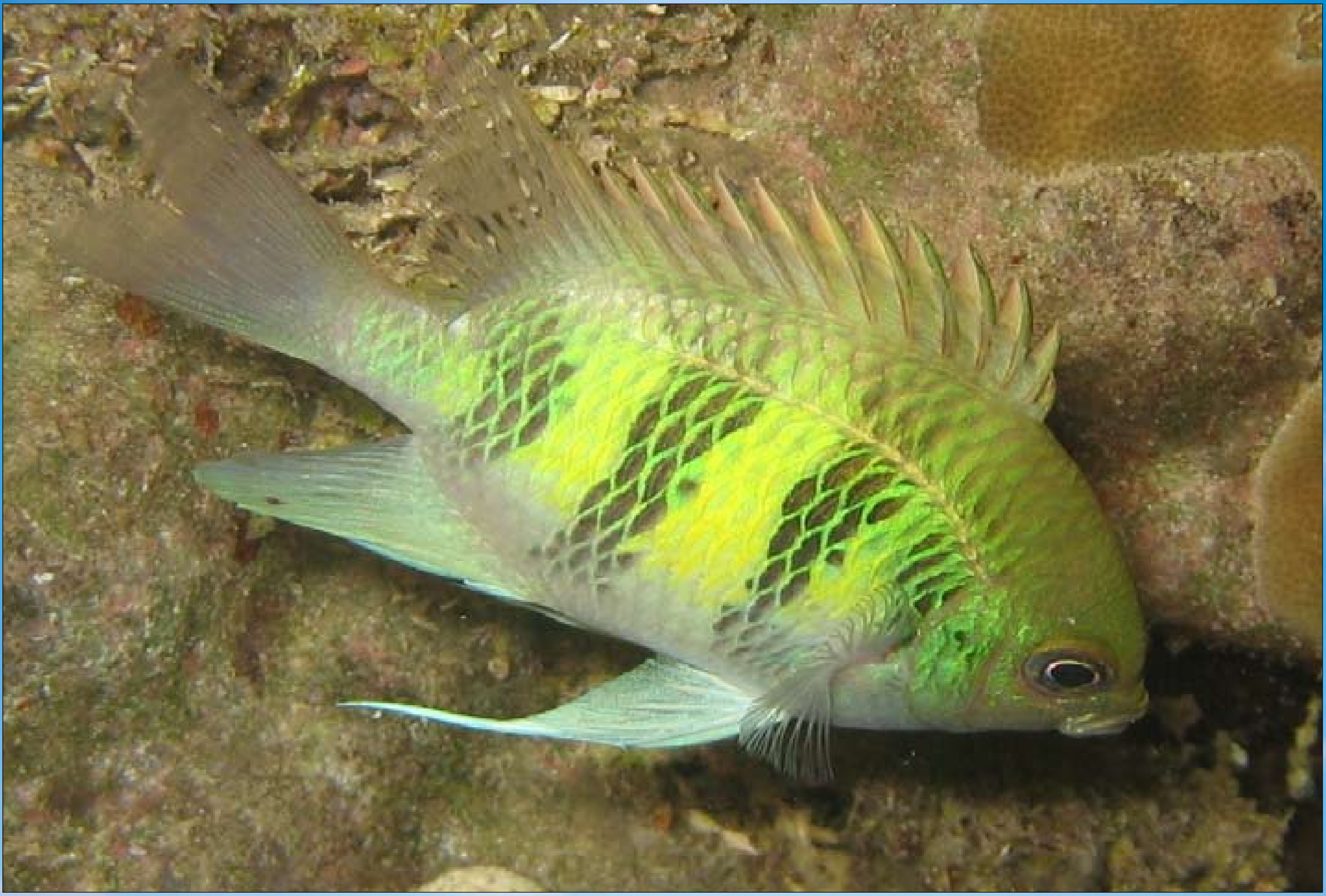
There is some mixed information regarding keeping different species of damselfishes together. Because damselfishes are highly territorial and aggressively protect their feeding grounds, it is generally recommended that, particularly in smaller aquariums, damselfish species are not mixed. On

ABOUT THE AUTHOR

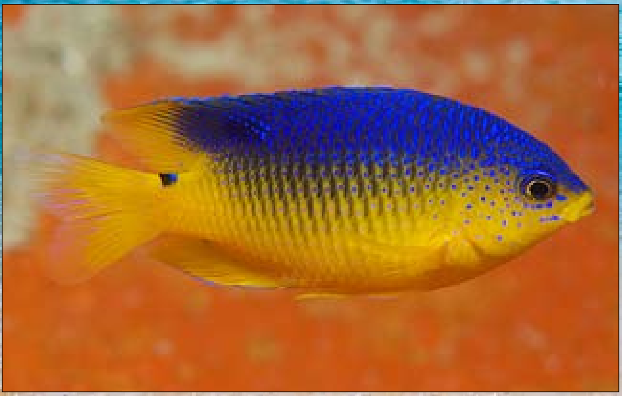
Aaron Sewell

In 2004 Aaron completed a BSc (Marine Science) at the University of Sydney with majors in marine biology and tropical marine science. Since 2001 he has been involved with the aquarium industry at hobbyist and retail level and now works in aquarium product development. Aaron is a former committee member of the Marine Aquarium Society of Sydney and has collected fish and corals in Fiji for the US and European aquarium industries. Aaron has been writing for several local and international aquarium magazines since 2004.

An illustration from the Journal Museum Godeffroy Fische der Sudsee (1886) shows the typical body plan of damselfishes and their clownfish cousins (top). Most species are stout bodied perciform fishes that resemble their freshwater cousins the cichlids.



There are some unusual damselfish species sometimes available in the hobby. This striking fish is *Amblyglyphidodon curacao* (the Staghorn Damsel). Like most of its relatives, it's straightforward to keep and adapts well to the aquarium environment. The species is native to the western Indo Pacific.



The juvenile form of the Cocoa Damselfish (*Stegastes variabilis*) is native to the Caribbean Sea and surrounding areas. As they age, individuals lose much of their colour, though blue highlights are retained.

The genus *Stegastes* contains some quite aggressive damsels that defend small territories (which are often larger than your aquarium!). This species is one of the more docile members of the genus, however, it's still a damselfish and some caution is advised when selecting conspecifics.

the other hand, provided that sufficient space and niches within the aquarium are provided for the various fish, it is certainly possible to keep several species together with relatively minimal inter-territorial scuffles taking place. As with most aggressive or semi-aggressive fish, it is recommended that when mixing species it is best to start with the least aggressive and work your way upwards, allowing each individual to establish a territory before adding a larger or more aggressive species/individual.

Chromis

Almost all marine aquarists have encountered the most common species from this genus, *Chromis viridis* and its almost indistinguishable relative *C. atripectoralis*, characterised largely by the presence of a small black spot behind the pectoral fins. However, this genus contains around 80 species with several species finding their way into the aquarium trade. Due to their relatively low value, these fish are often sold under the generic name of damselfish as wholesalers nor retailers have great reason to further identify these fish.

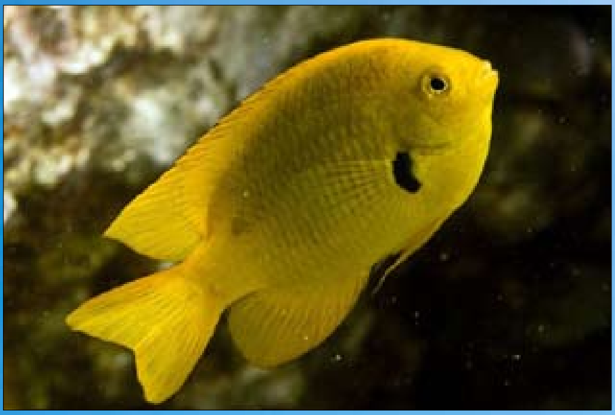
Chromis, *Neopomacentrus miryae* and *Anthias* species in the wild form large multispecies aggregates.

A school of Ternate Chromis (*Chromis ternatensis*) at the Addu Atoll in the Maldives. Here the species is found in large schools, frequently with outcropping *Acropora* species. The species is small, growing to around 10 cm (8.5″). Like other *Chromis* species, it's relatively peaceful. Large, odd-numbered schools in larger aquariums are better.

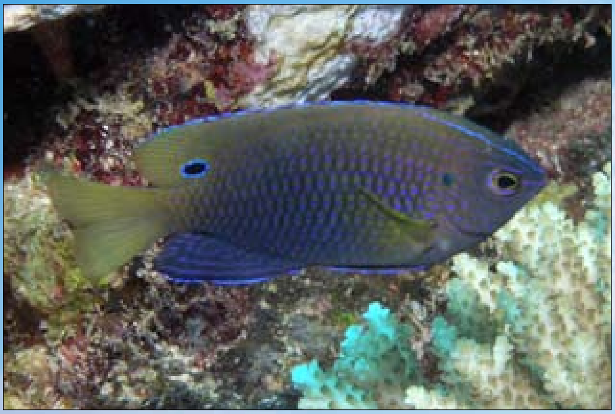
While damselfishes are notoriously aggressive for their size, *Chromis* seem to be one of the more common exceptions to the rule. Unlike most other damselfishes, *Chromis* are commonly kept in small shoals though this is not without some risk. *Chromis* are hierarchical fish and there is a distinct pecking order within the shoal (though this is not always apparent to the aquarist) and aggression is commonly passed down the line. In large shoals as they form in the wild the aggression is dispersed sufficiently throughout the shoal with no significant effects. In the aquarium however, in shoals of 3-10 fish, constant aggression aimed at the individuals lowest in the chain can be fatal. It is not uncommon for individuals to be picked off gradually leaving just 2 remaining individuals. This is less common in larger aquariums.

Chromis are relatively peaceful when it comes to tankmates that are not conspecifics. They may show some aggression towards the most peaceful of tankmates such as firefish but they are generally tolerant of tankmates that are not competing for the same space within the aquarium. Most *Chromis* reach around 5-6cm, making them one of the smaller groups of damselfishes.

Chomis species, including this Green Chromis are unusually peaceful for damselfish. They should be maintained in a school in the aquarium (preferably more than 5 individuals, and in odd numbered groups). The species is small, reaching only 8 cm (3″) in length. Best in larger aquariums where more substantial sized schools can be maintained.



The Sulphur Damsel (*Pomacentrus sulfureus*) is a rich yellow colour and well sized for most aquariums, reaching ~10cm. Juveniles are less brightly coloured.



Pomacentrus vaiuli , the Ocellated Damselfish is one of the more aggressive *Pomacentrus* species.

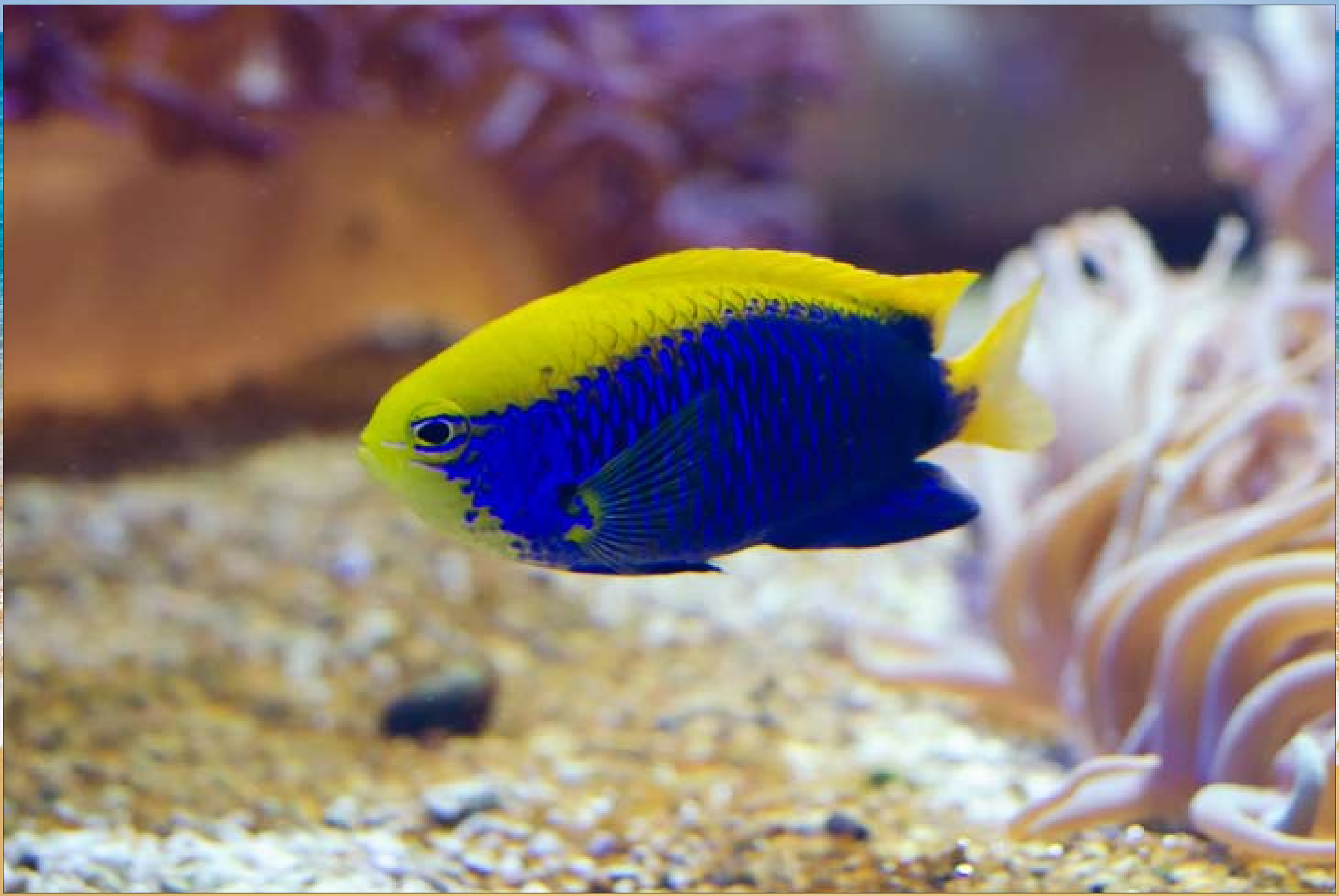
Pomacentrus

This genus contains some species that would be easily recognised by aquarists as well as some species that while not common in the trade are quite attractive fish. Most members of the genus do not get particularly large, usually reaching maximum sizes of around 7-8cm. Aggression varies greatly within the genus so compatibility can be a bit of an experiment, especially given there can be so much variance even within a single species.

Several of the more common species in this genus (including *Pomacentrus pavo*, *P. coelestis*, *P. caeruleus*, *P. auriventris* and *P. alleni*) are variations of what are commonly sold as yellow tail blue damsels, though each has a common name that can better identify them. Most of these fish, along with the commonly available Yellow or Lemon Damsel, *P. molluccensis*, are generally considered to be semi-aggressive and will often harass any smaller fish in the aquarium. On the other hand, the Fire Damsel, *P. bankanensis*, is relatively peaceful and usually will not bother smaller tankmates.

Chrysiptera

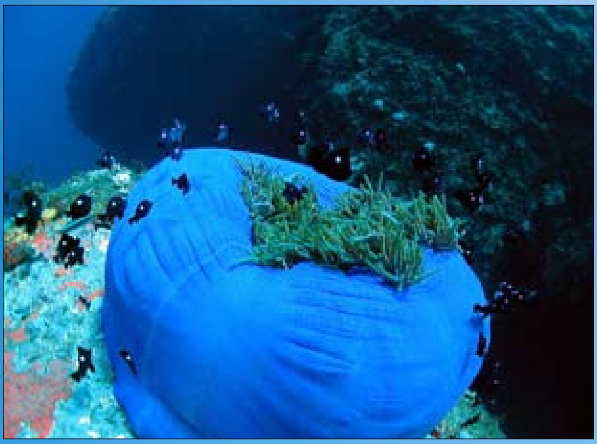
Here we start to get into the more aggressive damselfishes. Many members of the genus *Chrysiptera*



Chrysiptera starcki is a truely beautiful fish. The rule of thumb: one per aquarium and be wary with with tankmates.

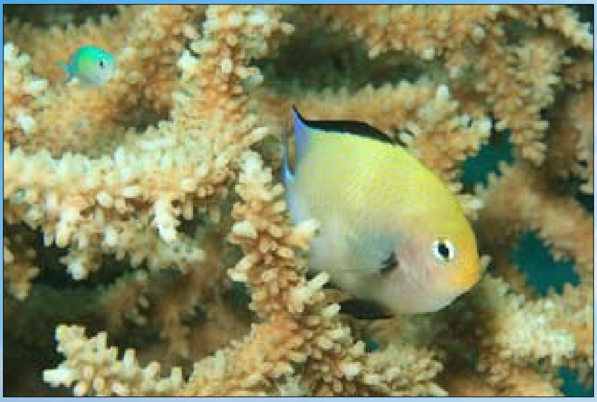
possess stunning colouration but care should be taken when mixing these fish with smaller tankmates. There are exceptions to the general aggression within the genus, with Talbot's demoiselle, *Chrysiptera talboti*, being a relatively placid member of the genus.

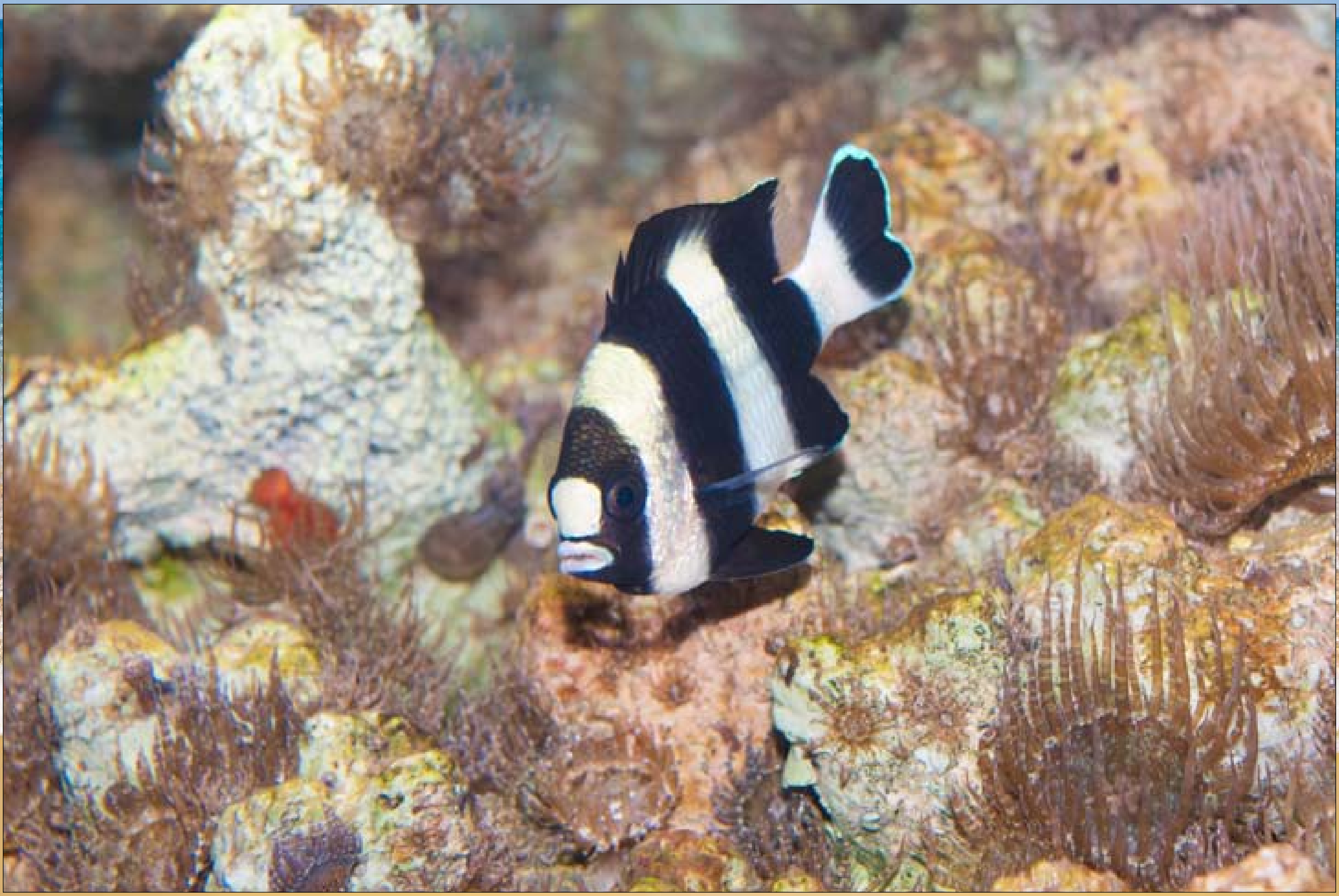
Like the genus *Pomacentrus*, the more commonly available of these fish are a combination of blue and yellow often with an almost iridescent appearance. This is an adaptation that makes these fish less conspicuous in open water where they would be easy targets for predators. The reflective, predominantly blue colouration helps them to blend in with the blue water around them, a trait shared by a vast number of species of damselfishes.

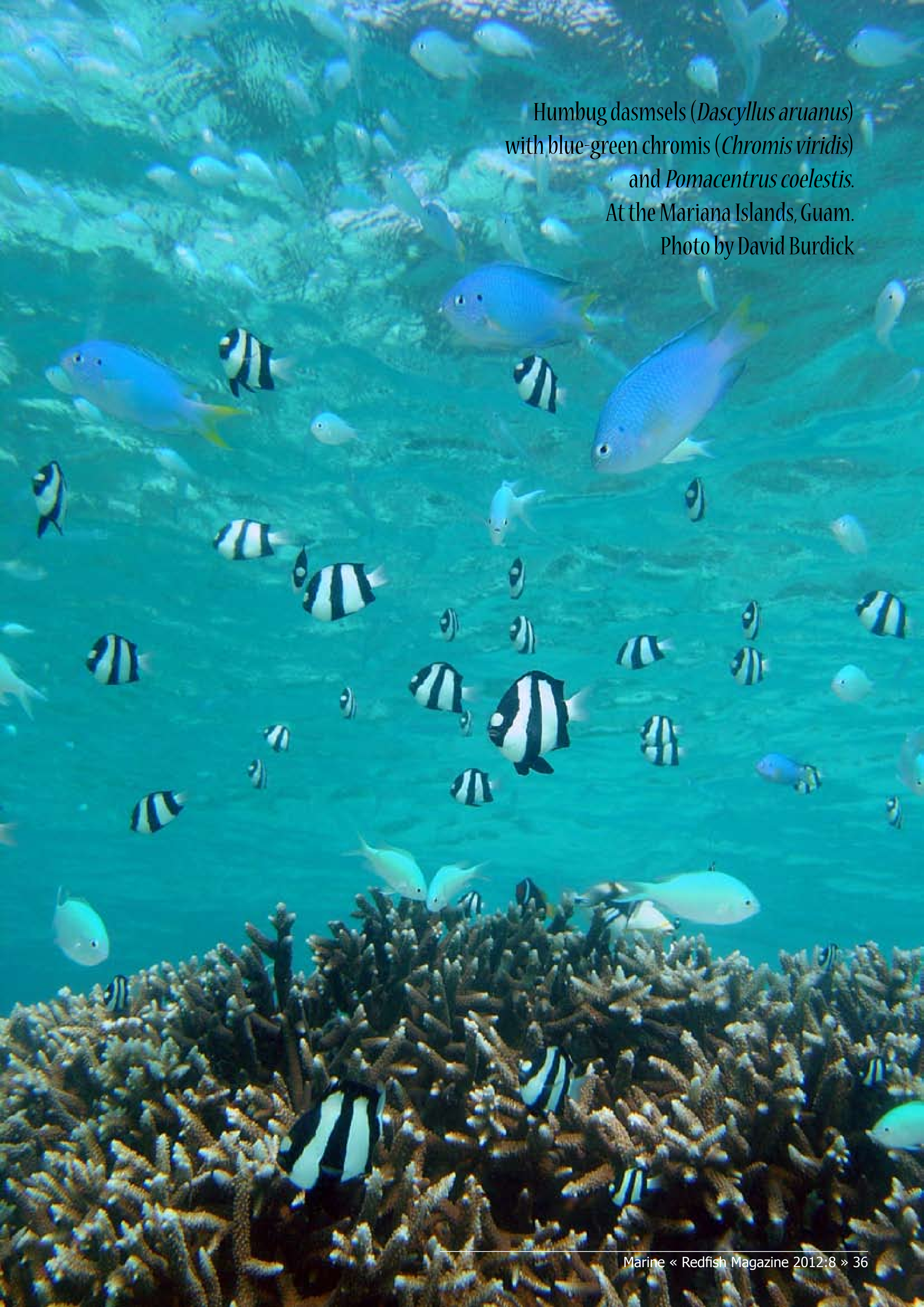

Heteractis magnifica surrounded by a group of Domino Damsels, *Dascyllus trimaculatus*, in Nha Trang, Vietnam. Photo by TANAKA Juuyoh.

Dascyllus

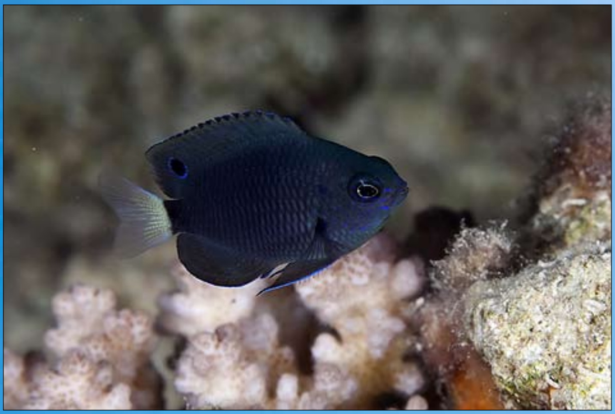
These fish are very closely related to the anemonefishes of the subfamily Amphiprioninae and in fact the Threespot or Domino Damsel, *Dascyllus trimaculatus*, is often found sharing an anemone with anemonefishes. Other members of the genus are found in small groups around colonies of branching corals such as *Acropora* where they will hover a few centimetres above the coral, feeding on zooplankton that passes in the current and quickly retreating amongst the branches at the first sign of danger.


The Red Sea Dascyllus (*Dascyllus marginatus*) is often found in branching corals.

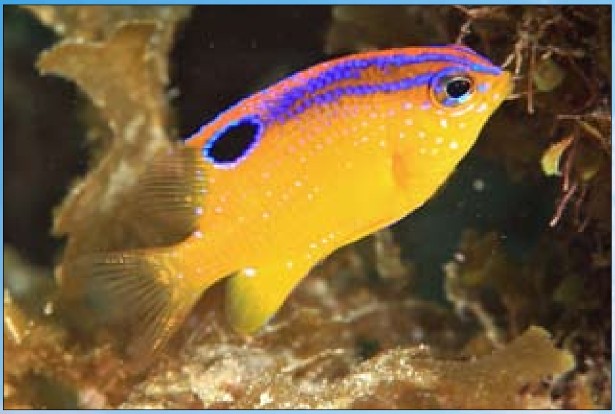

The Four Stripe Damselfish (*Dascyllus melanurus*) is an aggressive fish in the aquarium, but like virtually all damsels is reef safe.



Humbug dasmsels (*Dascyllus aruanus*)
with blue-green chromis (*Chromis viridis*)
and *Pomacentrus coelestis.*
At the Mariana Islands, Guam.
Photo by David Burdick

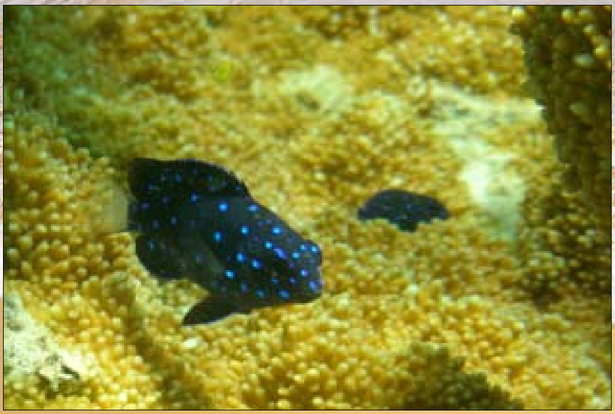


Pomacentrus leptus is a dark coloured damsel from the Red Sea.



a juvenile Longfin Damselfish (*Stegastes diencaeus*). Photo by Laszlo Ilyes

For a discussion of the large, temperate damsel known as the Garibaldi, see Redfish Magazine Issue #5.



the juvenile form of *Microspathodon chrysurus*, adults are large and aggressive. For specialist damsel keepers only. Photo by Chika Watanabe.

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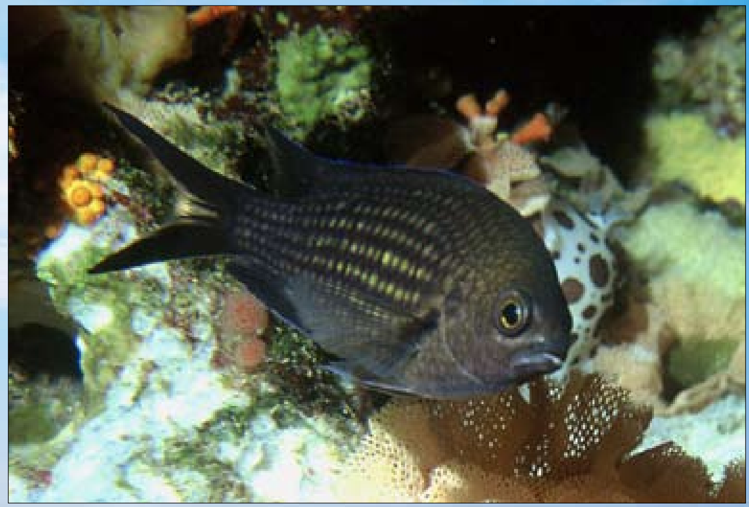

The juvenile form of *Chromis chromis* is marked with striking blue stripes, the adult form (above) is much more subtly coloured. Regardless, the species is a typical Chromis (except in size, it's large!) and is relatively placid.

The transition from juvenile to adult in many Pomocentridae is marked by colour changes - so the aquarist should be aware of both colourations before choosing stock.

Neoglyphidodon

This is a small genus with only a couple of species that are encountered by aquarists with any degree of regularity but I felt I should mention them because they are a genus that can get aquarists in some trouble. Of most note in this regard is the Velvet or Jewel Damsel, *Neoglyphidodon oxyodon*, which is black with iridescent blue streaks, quite a beautiful fish. However, not only does this colouration change (fading to black) as the fish matures and grows, and grow it will, reaching a size of around 15cm, but these are among the most aggressive of damselfish seen in the trade.

Members of this genus grow substantially larger than most

Whilst aggressive, the Domino Damsel continues to be a favourite of the marine aquarium enthusiast!

commonly encountered damselfishes and probably should not be recommended to the average aquarist. In an established reef aquarium, it is difficult to remove fish, for damselfish, this is certainly the case and it is quite undesirable to be stuck with a fish that is large, aggressive and doesn't even hold the brilliant colouration that was once the reason it was selected to be added to the aquarium.

Abudefduf

This is a widespread genus that will be familiar not only to marine aquarists but also to many people who have snorkelled anywhere along the east or west coasts of Australia, with species ranging from south of Perth right around the northern coastline and down to southern NSW. Fish from the genus *Abudefduf* are large relative to most damselfishes, with most species reaching 15cm or more. Like other damsels, these fish are aggressive and territorial. Their relatively subtle colouration, usually an assortment of vertical stripes on a pale coloured body, makes them a less popular choice for aquarists, however, they are still surprisingly common in the trade. Like many damsels, such as the aforementioned *Neoglyiphidodon* as well as the closely related *Amblyglyphidodon*, these fish are usually made available to aquarists when they are only a few centimetres long and are sold to aquarists who do not realise how large and aggressive these fish will become.

Conclusions

Despite the issues of reported aggression by damselfishes towards fish of other species, this is predominantly restricted to fish that are no larger than the damselfish and therefore it is quite safe to keep these fish with more peaceful larger fish such as surgeonfishes, angelfishes and butterflyfishes. While damselfishes might not be the ideal choice for all marine aquariums, they certainly have their place and can make excellent additions to the right aquarium. Most notably in an aquarium that is focused almost entirely on corals, damselfish add a splash of colour and movement. Since damselfish are completely safe to be kept with both motile and sessile invertebrates, they can safely be kept in aquariums stocked heavily with corals, anemones, clams and other invertebrates.

Abudefduf (known locally as Sergeant majors) form large schools. They are striking fish, though aggressive and large in size.

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http://www.aceforums.com.au

Australia New Guinea Fishes Association (ANGFA)
http://www.angfa.org.au

New South Wales

Koi Society of Australia

> Coffs Harbour
Meets 14:00, last Sun. each month. 7-9 Prince St. Bellingen.

> Newcastle
Meets 19:00, 1st Tue. each month. P: 4959 6000

> Central coast
Meets 11:00, 1st Sun. each month. Watanobbi Community Centre, Watanobbi.

> Northern Sydney
Meets 20:00, 2nd Wed. each month. West Pymble Memoric Hall, West Pymble.

> Cumberland
http://ksacumberland.webs.com
Meets 19:30, 3rd Wed. each month. Brennan Park Hall, Smithfield.

> Macarthur
Meets 19:30, 4th Mon. each month. Currans Hill Community Hall, Currans Hill.

> Illawarra
Meets 19:00, 4th Tue. each month. Flinders Community Hall, Flinders.

> Southern NSW
P: 02 4454 0194

Marine Aquarium Society of Sydney
http://www.masa.asn.au/mass/
e: mass@masa.asn.au

New South Wales Cichlid Society (NSWCS)
http://www.nswcs.org.au/
Meets 19:30, 1st Sat. each month, Nuwarra Public School, Moorebank.

New South Wales Cichlid Society (NSWCS) - Illawarra. Meets 19:30, 2nd Sun. each month, Kanahooka High School, Kanahooka.

Australian Koi Association
http://www.akakoi.com

Victoria

AQUARIUM SOCIETY OF VICTORIA
HTTP://ASOFV.COM.AU/

Marine Aquarium Society of Victoria (MASOV)
http://ozreef.org/masov.html
e: dbw@ozreef.org

Eastern Districts Aquarium Society
http://www.edas.com.au/
Meets 4th Fri. each month, Willis Rm, Council Offices Nunawading.

EDAS plant study group
http://www.edaspsg.org/

Queensland

MARINE AQUARIUM SOCIETY OF REGIONAL QUEENSLAND
http://www.masrq.org
e: info@masrq.org

MARINE AQUARIUM SOCIETY OF QUEENSLAND
http://www.masa.asn.au/masq.php
e: info@masq.ws
P: 07 3261 8582

ANGFA Qld
http://www.angfaqld.org.au

GOLD COAST AQUARIUM SOCIETY (GCAS)
HTTP://WWW.GCAS.NET.AU

Aquarium and Terrarium Society of Queensland
http://www.aandtsociety.org.au
E: aandtsociety@gmail.com

Marine/Reef Aquarium Society
http://www.aandtsociety.org.au
E: aandtsociety@gmail.com

Queensland Cichlid Group
http://www.qcichlid.org
Meets 20:00, 1st Fri. each month. Bar Jai Hall, Clayfield.

Brisbane Aquatic Plant Study Group
http://bpsg.frell.org/

Wide Bay Aquarium Society
wbaqs.com.au/forum/index.php

ACT

Canberra and Districts Aquarium Society (CDAS)
http://drupal.cdas.org.au/
Meets 19:30, 3rd Tue. each month. Harmonie German Club, Narrabundah.

Canberra Killifish Study Group (CKSG)
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sanfa@bold.net.au

Western Australia

Marine Aquarium Society of WA
www.masa.asn.au/maswa/

maswa@masa.asn.au

phone:
Chris Sutton
0419 858 108

Perth Cichlid Society
www.perthcichlid.com.au

Koi Society of WA
www.koiclubwa.com
Meets 19:30, 4th Wed. each month, Rotary Hall, South Perth.

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Tasmanian Aquarium Society

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Hobart Cichlid Society
www.tassiecichlids.com

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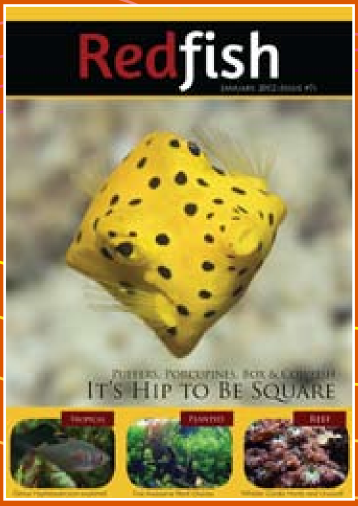

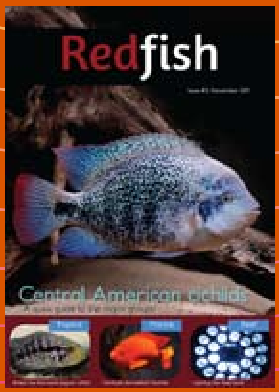

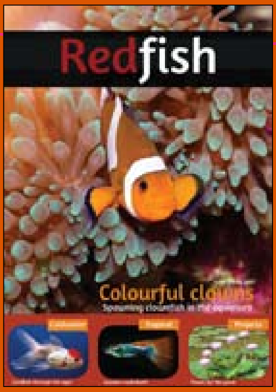

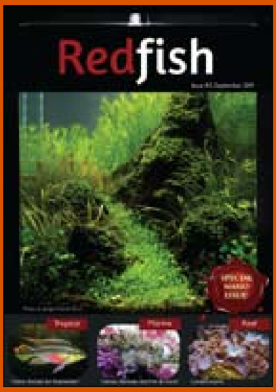

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